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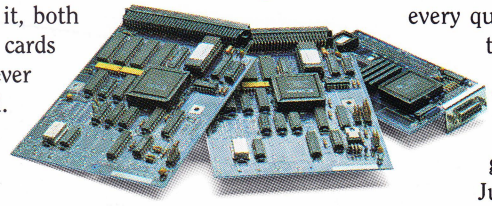
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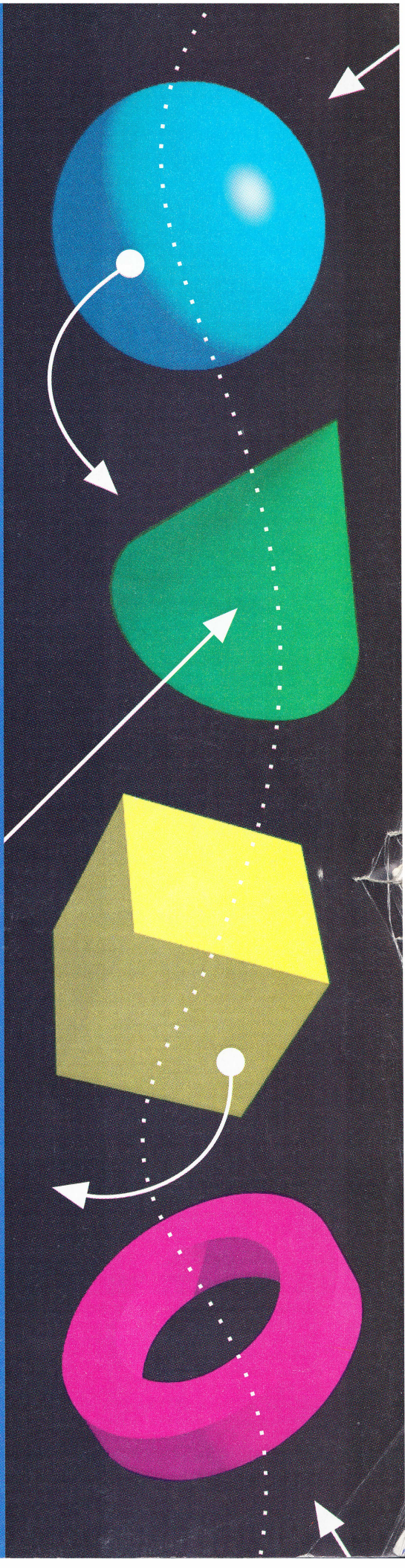
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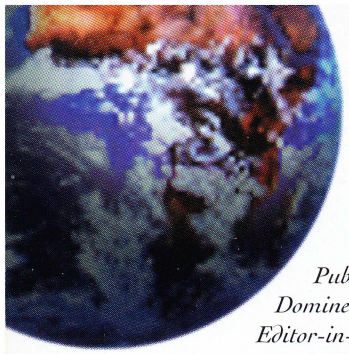
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Erratum from Issue #4: We neglected to include the address and ordering information for Nomadness (pg. 32). That is: Nomadic Research Labs P.O. Box 2185, El Segundo, CA. 90245 $15 for 6 issues plus tax if in CA. *Computing Across America* (book) is $11.95 plus tax if in CA. We also neglected to credit George Gleason for editing the conversation between Ted Nelson and John Barlow (pg. 136), an awesome task.

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About the Cover, etc.

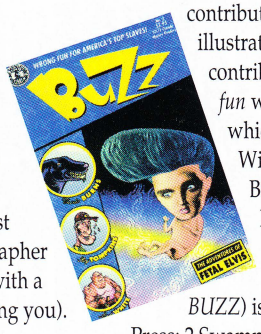
We got a telephone call from a friend of ours not long after issue four came out, with a delightful anecdote about our newsstand positioning. Our friend, a certain mister Kai Krause (a partner with Roger Dean in an architectural endeavor known as Curved Space), rang us up in Los Angeles on our return trip from SIGGRAPH '91 in Las Vegas. It seems Kai searched his nearby international magazine stand for quite a while before he finally uncovered our humble publication—in the **Italian Fashion** section. We joined Kai for lunch the next day, and concluded our meal with a stroll to said newsstand and *con mia grande meraviglia!*—**Mondo was sold out.**

Which is **NOT** why we are featuring Italian Astrophysicist Doctor Fiorella Terenzi on our cover. But hey, if it sells magazines, then maybe we'll become successful and I can renew my subscription to the New Yorker.

And speaking of the cover. The photograph of **Dr. Terenzi**, was made possible by a top crew of professionals in San Francisco.

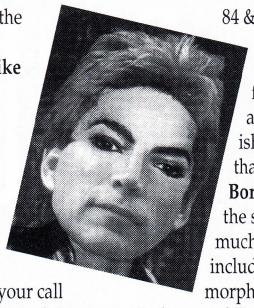
Team Terenzi assembled at the studio of **Liz Zivic**, who also assisted. Fiorella's hair was designed by **Frances Sorensen**; **Jake** (yes, just Jake) was our make-up artist. The gentleman smoothing the curves is **Travis Jaggers**: master stylist and I guess, now also *cover boy*. The photo assistants were **Susan Frank** and **Stafford** (yes, just Stafford). **Heide Foley** and **Jas. Morgan** handled the coördination. **David Reisner**, **John Vlautin** and Island Records were extremely helpful in making Fiorella available for us, and we thank them for it. Oh, and the photograph was taken by me, **Bart** (not just Bart).

Let me talk to you about some of the artists in this issue, first, but not second, **Erin Riordin** took the photos for our new section headings. Austin photographer **Martha Grenon** (not a slacker) provided the pix for the Robofest article. **Khyal Braun**, a photographer and illustrator, married a man with a penis (she told me—so, I'm telling you). **Mark Landman**, who has been



contributing precisely twisted illustrations to Mondo for years, is contributing some major *wrong fun* with the comic book *BUZZ* which he designs and edits. With artists such as Charles Burns, Jim Woodring, and Mark himself, filling the pages of *BUZZ*, wrong fun is good. *BUZZ* (yes, just *BUZZ*) is published by Kitchen Sink Press: 2 Swamp Rd, Princeton WI., 54968.

Pamela Hobbs flew from New York to deliver her illustration for the Smart Drug Update on page 36, then we had dinner. Indian food. Very good. Hi Mike.
Jill Greenberg, also from New York took the brilliant photos of Sharp & Branca starting on page 66.
Jim Cherry, Jim Cherry, Jim Cherry, what can I say about Jim Cherry?—he did the illustration for St. Jude's Irresponsible Journalism. The bronze sculptures in the Virtual Nintendo and Camille Paglia articles are the work of **Joel Peril**, Coronado High School class of '69.
Well at this point it looks like I'm going to name every artist who contributed to this issue—and why the hell not?
Kevin Evans, Mike Saenz, David McGlynn, Jay Blakesberg, Rex Ray, Eric White, Stephanie Rausser, Kim Stringfellow, Sydney Stein (I'm waiting for your call Sydney), **Peter Menzel, James Koehnline, and Rich Davidson.**



On the international scene, **Cor van Gastel** and **Gerry Hurkmans** provided the photos for the Dutch fashions on pages 84 & 85.
Assuming I haven't forgotten anyone in this ish, I'll finish by thanking **John Borruso**, creator of the spine art and so much more, including this swell morph of Michael Jackson and David Duke.

—Bart Nagel

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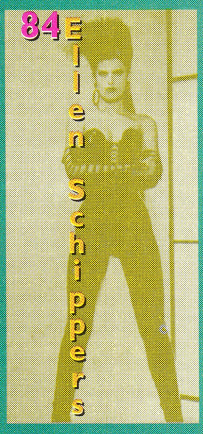
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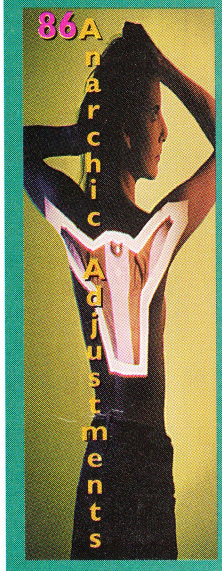
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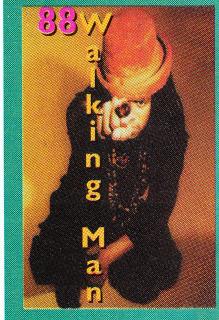
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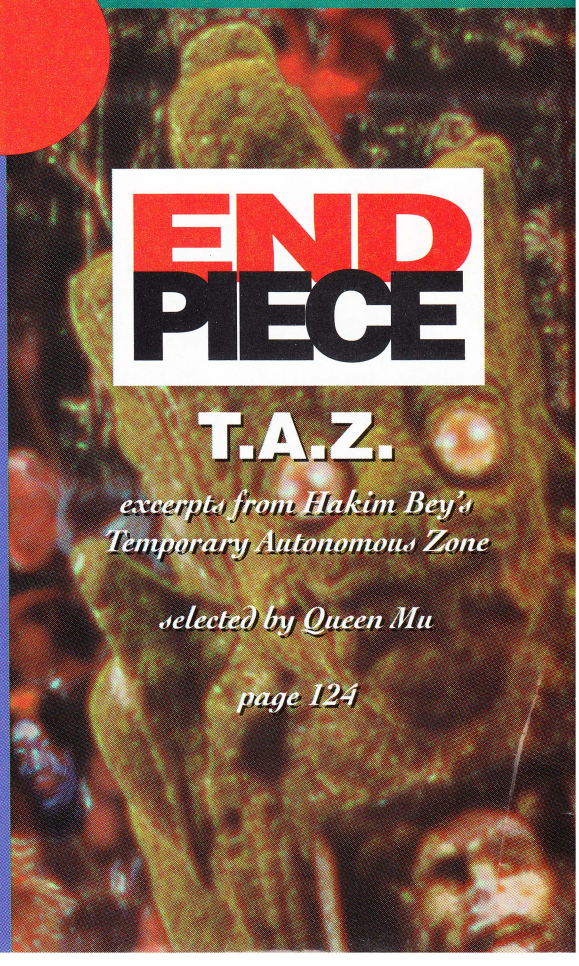
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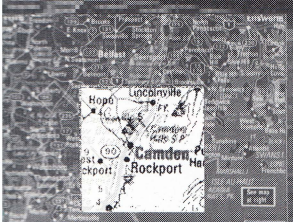
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excerpts from Hakim Bey's Temporary Autonomous Zone

selected by Queen Mu

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There is a place in Camden, Maine where pigs will fly, lightning will strike twice, hell will freeze over and eventually things will get really interesting.





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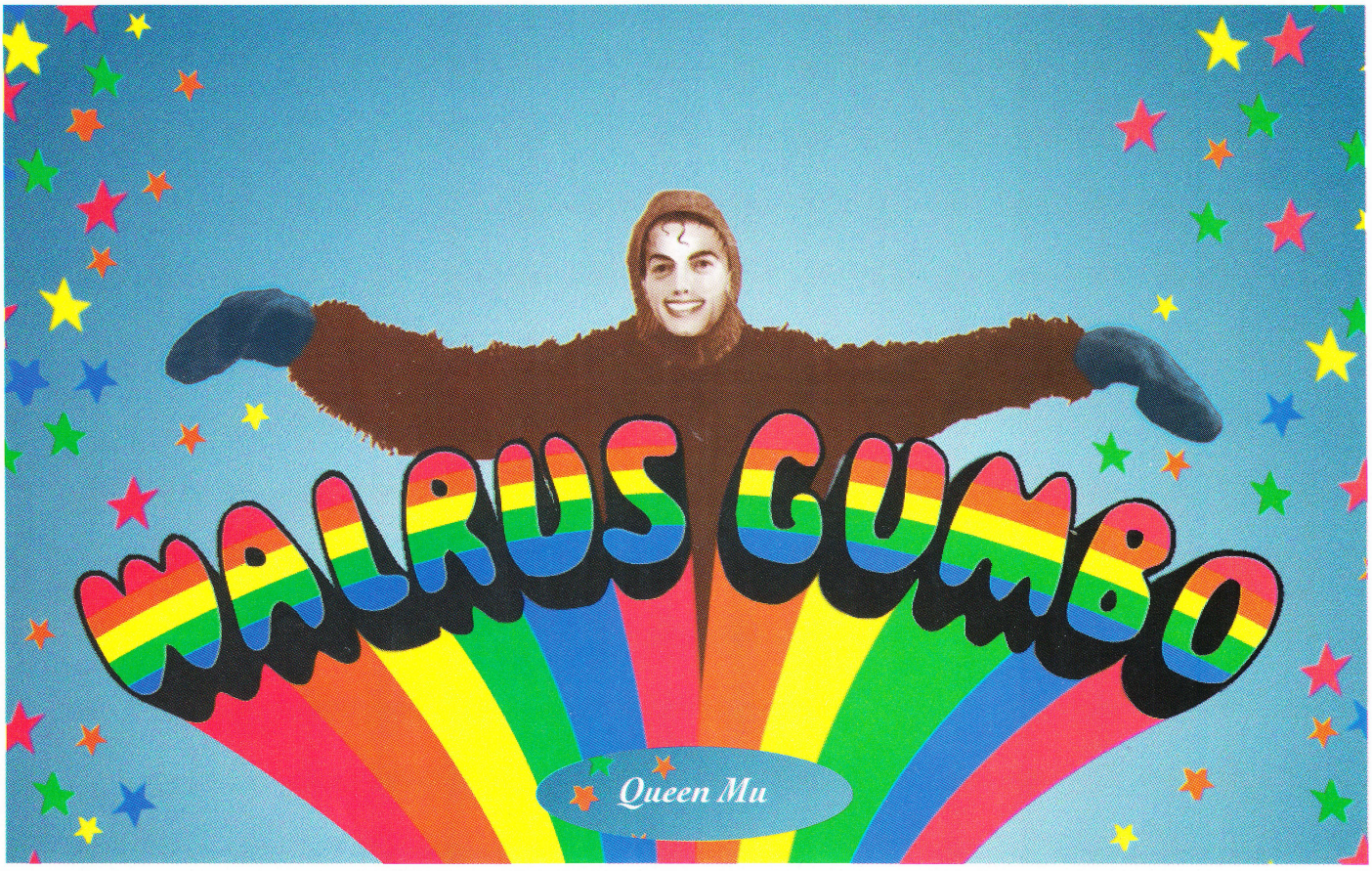
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"Suffer little children," said the Controller.

"In the end," said Mustapha Mond, "the Controllers realized that force was no good. The slower but infinitely surer methods of ectogenesis, neo-Pavlovian conditioning and hypnopædia..."

—Aldous Huxley, *Brave New World*

John Lennon knew.
But then he was a prophet.

Michael Jackson *must* know.
But then he's been coöpted

I've got this big jigsaw puzzle I've had ever since the sixties. Every once in a while I haul it out of mothballs and see if I can put it together yet. There are a few pieces still missing... and a few pieces that seem to belong to another set altogether. The puzzle itself is called "Walrus Gumbo" (evidence, I claim, for John's prophetic genius!).

Here's the picture in broad strokes. The border's pretty much there. Ron and Nancy, George Bush, and Elizabeth Taylor. It looks kinda like a garden party. Yoko, Sean and Macaulay Culkin. The Elephant Man. Even the Simpsons. The central icon, dancing on the Ford, is surely Michael Jackson... but I can't find the face piece. I've got a piece that fits but it's a 15-year-old *maiko* girl in rice powder paint. And I still can't fill in the face of the Walrus.

The basic driving messsage of the new Jackson video is "It don't matter if you're black or white." That no one has remarked on the irony of Michael's performing it in *whiteface* says something. Amid all the moral tub-thumping and outrage, the fact that this was the most exquisitely wrought little piece of propaganda ever released seems to have been overlooked. Over 7 million dollars was spent on the 11 minute video—the first Michael Jackson video since he signed with Sony. A deal that may help explain his makeover into a *bishonen* or androgynous pretty boy. He has not only been cosmeticized for Japanese consumption, but—as in the Daijosai enthronement ceremony—has become a ritual female.

Propaganda Films produced "Black or White" with former snuff flick director John Landis directing. Yet it was Michael's baby all the way. Produced at fever pitch in 28 days, it amasses a powerful punch through the appropriation of high tech special effects. "Morphing" is one of these—yes, it's now a verb. And the effect is disturbingly powerful.

This sequence—produced by Pacific Data Images—was the longest continuous "morph" sequence ever. Twelve dynamic transformations across gender and ethnic boundaries: a marvel of seamless matting and killer algorithms. Described as "costing $10,000 a second and worth every penny."

It is so blatantly propagandistic it verges on camp. "Come together, right now, under me," it seems to be saying. That "Come Together" is the first song Michael's recorded of the Northern Songs catalog he euchred Paul out of, is the sublimest of ironies.

Never before has someone rejoiced in such megaphone capability. The debut of "Black or White" reached an estimated 500 million people

in 27 countries. The deleted *masutabeshan* scene merely added to its draw. I mean, if you were World Controller and wanted to insinuate your meme into the collective psyche of Middle America, what would you do? Right.

The phallic display persists on the æther—and on countless bootleg tapes—like a phantom limb in all its mythic radiance. And as a guaranteed hook for Sweeps Week, it was unbeatable. But was it perhaps more than that—a magical act, a trigger, a sexual imprint on the world's prepubescent? Is Michael Jackson *more* than just our most successful export? Certain theatrical embellishments suggest magical acts. His patented crotch-grabs signal his shapeshifting (see *Moonwalker*), so important in Teutonic witchcraft.

"Black or White" has a weird, fractured quality that's hard to put your finger on. Like Japlish, there's that eerie dissonance, alien and inauthentic. I'll leave the precise exegesis to Greil Marcus, but no opportunity was lost in creating "the heaven of the spectacle." Most compelling was the morph from Michael Jackson into his panther nagual. The algorithms leave one gasping. Between that and the crotch grabbing, no one stops to examine the flaming contradictions. Just like the *fascinum* of antiquity, the obscene and the technically dazzling are employed to rivet our attention, away from what's *really* going on. Michael is being marketed as both the savior and deliverer of the children of the world. But there are the added resonances of the dangerous, the orgastic and the violent. Only a technique like morphing could deflect us from this curious discontinuity, this cognitive dissonance.

The message "It don't matter if you're black or white" is the message of the Antichrist. It's just the sort of sanctimonious pap he's supposed to spout. Of course it matters! Cultural relativism—a fine thing—does not negate the biological reality of DNA, at least not yet. The hidden correlative of that refrain is that there is no *moral* black or white. And however fashionable ambiguity may be, I'm just Manichaean enough to believe that there are two poles, Good and Evil, and that most of us lie somewhere in between... What better cloak for Evil than ambiguity?

The notion that Michael Jackson is the Antichrist has been making the rounds for a while now. And though a fascinated observer of Apocalypse Culture, I don't fully buy into that one. The Far Right *does* seem intent on manifesting Biblical prophecy as their mandate, however. And every Antichrist needs his prophet, his John the Baptist—a John the Baptist with a 15 square-mile theme park in Paraguay.

Which brings me 'round full circle to *The Lost Prophetic Writings of John Lennon*. John, with his uncanny prescience, foresaw an era when the Walrus would cover the earth with theme parks. When "theming" would become a verb, when this blatant act of cultural imperialism would be embraced by the subject cultures and even hallowed. Spiritual theme parks like Akeno on Japan's Izu Peninsula or the Maharishi's Vedaland in Florida. Therapeutic theme parks, VR Aesculapia, high tech incubation centers.

In cryptic verses he described how the theme parks of the future would cloak the "living laboratories" of the Industrial War Machine dedicated to mind control and behavior modification. The internment camps of the future would be Biospheres. Dermal patch technology—the protocols were established for nicotine—and subdermal microchip implants would guarantee one the full experience. And for Po-mods, the full experience might be VR transsexualism, VR auto-castration—extremes of neural hormonal experience—now that routine stimulus has numbed our response threshold.

Control is the program: benign, paternalistic, downright avuncular. The Walrus, the Antichrist are catch-all metaphors heavy with freight. John appears to use them interchangeably in his *Lost Prophetic Writings*. He understood the power of the media—simply "newspeak" for propaganda. Glamour, seduction and mind control. The Walrus was the master media manipulator, the arbiter of pop culture and kitsch. But the Walrus was more than a metaphor. He was a real man. John Lennon knew who he was but, like the court jester, could only tell us only in conundrums (see "I am the Walrus," inspired by "The Walrus and the Carpenter.")

It remained then until the discovery of the *Lost Prophetic Writings* for us to get a clear picture of our prototypical arch bull-Walrus. Lewis Carroll dealt in doubles or complementary dyads. The Walrus and the Carpenter. If the Carpenter is Christ, who is the Walrus? Who, in this century, is the master of hypocrisy, petty morality, and the Ersatz? Who bastardized and sanitized the Brothers Grimm, leaving out all the good bits? Who has imprinted generations with counterfeit images stripped bare of real soul-stuff? Who ruled "Mauschwitz" with an iron hand with the galley slaves chained to the oars? (Clue: he's got a walrus mustache).

Yoko Ono's stated objective was to bear the Messiah (a not uncommon delusion in the annals of New Age). She was uniquely fitted for this role through centuries of tradition and selective breeding. With John's Liverpuddlian genes for hybrid vigor, Sean was an alchemical experiment, destined from the womb to be the new digital Maitreya.

To forge a World Mythos, a would-be leader requires a global PR campaign of such proportions that it boggles the mind. A universal icon needs to be created that amalgamates all races and genders through the glorious apotheosis of facial averaging. The myth also needs to amalgamate messianic traditions, East and West. John the Baptist and Jesus Christ, the Youth of Lunar Radiance in Medieval China, Stephen and the Children's Crusade, the Pied Piper, the Magical Child, Mickey Mouse, Rudolf Steiner and the ten-year-old Krishnamurti, and the various Maitreya figures of Japanese Nichiren Buddhism. See how they fly like Lucy in the sky, see how they run.

Michael Jackson's "Magic Kingdom" is the world turned topsy-turvy. A Disneyland of Chapel Perilous; a phantasmagoric Luna Park. The symbolism ranges from Bosch to carney, with Bubbles his pet chimpanzeee being crowned atop it all. Edison sports a campaign pin that says 1992 while Tom Thumb stands on his head. There's enough material on the *Dangerous* album to keep pop iconographers busy 'til the snow thaws. The world turned upside down is a prime apocalyptic theme. The holy fool is elevated, the freaks and the simpletons inherit the earth.

Our species has always had a taste for the marvelous. Special effects and simulations hold us in thrall. But now artifice alone has reached a point of mass cultural apotheosis. Skin jobs are in. Cyborgs are hot. There's no stigma at all attached to cosmetic surgery. David Duke readily cops to four or five. He can tell Michael Kinsley on Crossfire that he looks like a worm and should make a date with a scalpel. David Duke, in fact, is beginning to bear an uncanny resemblance to Michael Jackson. I'm just waiting for the ultimate morph. M:2

SHOCKING MONDO "CYBERPUNK" REVELATION

Attention, "Ed Sullivan of Subversion!" I draw your attention to the following graphic documents. Exhibit A: a laser-photocopy from the July 1991 issue of *Security Management* magazine, a publication of the American Society of Industrial Security (ASIS). Exhibit A illustrated "Costly Callers," an article



Exhibit "A"

on voice-mail hacking by Chicago-based federal prosecutor William J. Cook, the gentleman who brought us both the Craig Neidorf trial and the Steve Jackson Games computer seizure.

Exhibit B: a shockingly detailed and accurate portrait of typical *MONDO* subscribers. Is there *any* question that *this is the same woman*? She's switched her blouse, changed the shades, and has been caught with an unidentified computer-criminal with whom she clearly shares an illicit relationship—but the dyed lock of hair will not disguise her from sharp-eyed anti-hacker agents. I must warn you that flagrant association with telecommunications fraudsters has been known to bring a swift end to radical magazines in California (RAMPARTS case, June 1972—seized by police at the urging of Pacific Bell security, pursuant to California Penal Code section 502.7).

Just try and watch it, okay? And send more ephedrine. The pumpkin pie's running low.

Bruce Sterling



Exhibit "B"

To R. U.,

Please stop the fashion articles. Who gives a shit? I feel like I'm reading *Good Housekeeping.*

Connie Malamed
Middletown, MD

P.S. Please stop sprinkling your magazine with advertisements and photos of women as sex objects. Your 1950's American male subconscious is showing.

P.P.S. You're probably too entrenched to know what I'm talking about. But, if you care, call or write and I will explain in more detail.

Actually, I've got a 1960's male subconscious which is much *worse. But I'm not the issue here. The majority of the materials in question here were conceived and designed by women (who weren't even born in the 50's), and the strongest advocate was* MONDO *Domineditrix Queen Mu.* MONDO *really* is *a matriarchy, Connie. And I don't know about you, but I'd hate to be the one caught being presumptuous about the superiority of my consciousness around Mu, St. Jude, Gracie or Lady Drew.*

By the way, say hi to Bob. R. U.

I'm a journalist telling Danish people what to think about Virtual Reality.

I enclose picture "The Danes encounter with the Virtual world."

Lars Greir
Copenhagen, DENMARK

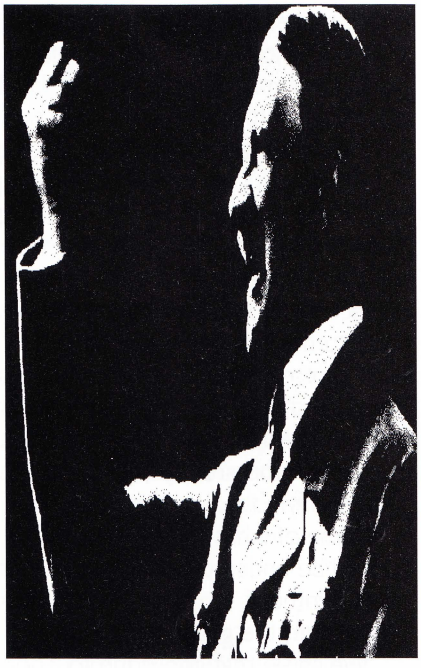
You should talk to Connie Malamed. R. U.

Hitler was given many drugs and combinations of drugs during his final days in the bunker, the most used being a combination of the hypnotic Diorden and the narcotic analgesic opiate codeine. Being a street psychopharmacologist, I can tell you that this neat combination, known as a "set," (one gram of Diorden and 120 mg of codeine) metabolizes in the brain as a morphine-like opiate that closely mimics endorphins. Having not only used but having also been addicted to raw (heroin), mixed jive (heroin w/quinine, light bulb filament, hypnotic powder—usually Diorden—doans and ?—bangable only—3 paks in a 3cc rig w/26 g. spike—O my God, what a rush, better than a million orgasms!, morphine (both the white water soluble 50 & 100 mg tabs in a BD or the purple 35 mg sulphate or the peach 70 mg sulphate—can't

shoot 'em), demerol (meperidine) both D-35 (50 mg) and D-37 100 mg tabs and the clear sparkling wonder juice in a glass vial (6 hour marathon fucking sessions), dilaudid (hydromorphone) one, two, three or four mg pills boosted (can't cold shake 'em)—the 3's are neat looking in the cooker—they're purple, percodan (oxycodone)—too much coffee and shit, can't be banged too well, seconal, valium, xanax, dalmane ativan, serax—great mixed with methadone—what a nod!, cocaine powder, based and rocked (all shit), glue, aerosols, MDMA, soma, weed, hash, hash oil, opium tuss cough syrup—liquid gold, codeine cough syrup, LSD-25 (better 20 years ago), STP, mushrooms, buttons, mescaline, embalming fluid on a nat sherman, nitrous oxide, so called "psychotropics" (actually psychoactive) like perphenazine, elavil, haldol, nardil, lithium (o.k., maybe not a drug) and I've been in love with the needle for years. I've been an addict since 1971 and I've been using since 1965. I'll be 34 years old this month. Up until the last 60 days, I was drinking met for 4 years (and using all of the above).

Lemme tell ya 'bout a drug... it's called ADOLPHaphine (the "A" has been dropped), named after Hitler after having been synthesized by Nazi SS scientists as a substitute for morphine (the African theatre heated up and cut off their opium supply from the east). And why did Himmler, Goering, Eichman and our gang need morphine? (Of course Goering had been shot down in WW I, was injured and became addicted to codeine.) The SS cats used girl (coke) to stay awake and hustle for Adolfski for weeks at a time, they needed morphine to come down...

Adolaphine is methadone. Heroin is the devil's blood. I've *never* known a junkie that has used for at least ten years and not gone to hell on an OD. Hell is like a "bad dream" that one thinks he/she has awoken from only to find that things keep getting worse. One goes deeper and deeper "into" something, like going into "yourself" somehow. Think of the imagery: planet earth—80% water, 20% mineral, same for human body. "Heaven" is "up" or "out" with a sphere and "hell" is "down" or "in." See? Think about it...



Does this man need a caption ?

Hell is being cut off from the truth, and it never ends. (Us junkies often describe these "dreams" or negative psychic spiritual experiences as "never-ending"—we look ahead and see it go on forever. Kind of like the video game Tempest where one gets "deeper" into something—level by level—and it keeps getting more difficult and horrible. Bottomless pit). *Deceipt* is a big part of hell and of drug addiction (same thing), and we all know that dope is a lie. (The dragon is a full of deceipt, arrogance and false pride... ever see a junkie locked up for a drug bust ten hours after no fix? That arrogance and pride *was* false.)

Jesus & Mary Chain (*Psychocandy*), Sisters of Mercy (*Turn on, Tune in, Burn out*), Birthday Party & N. Cave & Bad Seeds, *all heroin addicts,* (but then again isn't the whole industry about heroin?) deal with "anti-spiritual/religious" topics. Upside down crosses, SS death's head insignia and black, black, black were all a part of my life for the last five years of addiction. Again, heroin/dragon and anti-spirituality/religion/Christ...

Now you can bet that I'm done with junk.

The Beatles record company was "Apple"—"Eat and be wise."

Hell is "underground," like the "sub-culture" or "underground movement," and Hitler's bunker was underground, where he died a junkie. Trust me, had Hitler not been using dope from '42 on, we'd be part of the New Order and speaking German. His bad decisions were made while high on morphine and stuff. Or he slept through major battles while stoned with orders not to be awakened. Had he been awake he would have made pivotal decisions that would have won the war for the Axis. Drugs saved the world.

The mark of the beast isn't *anything* to do with computers. The pineal gland is located in the center of the forehead (where the soul enters and leaves the body—ever see the Hindus with the gems and crystals on their foreheads to magnify that power?) The nature of that channel changes with the use of drugs. The mark of the beast is the alteration of the pineal gland.

The SS Nazis were quite heavy into numerology and astrology (both go hand in hand with telling the future—sorceries, and the swastika—druid pseudo-Teutonic cross). Both Himmler and Hitler (both junkies who died of self-administered cyanide—same "drug" that killed the six million plus) claimed "divine providence" for their

actions and victories—political and personal. Himmler even claimed that the primary source of "power" for the Third Reich came from the spear tip that was used to pierce the side of Christ. (Pieces of the cross and a nail from the cross being held by the SS Nazis as a source of "divine" power (energy) have been reported.)

Death and drugs have always been tied together, and music is a part of that. The Grateful Dead may be the best example—LSD-25, mushrooms, weed and opium all tied in with (boring) hypnotic music and (grateful) death.

The Menninger Foundation, a mental hospital in Topeka, KS (not far from Lawrence and Burroughs) has the zip code of 66601.

The first three digits of my phone number are 666.

Menninger "heals" head wounds and a syringe is like a sword...

Drunkards don't go to heaven...

Alcohol is a drug...

"All roads lead to Rome." Rome, Italy is the heroin mecca of the planet.

You figure it out...

Psychotic Errol Flynn

Detroit, MI

Dear MONDO 2000,

R. U. Sirius, etc.,

I just wanted to write to you and tell you how sick your magazine makes me feel. Gee, when I saw that great illustration of the gray alien melting away on that article on Burroughs and Leary, I just felt so bad because my tune "UFO Rescue" (which has lots of samples from the Persian Gulf soundtrack and *The Day the Earth Stood Still*) wasn't released yet. So although I'm not financially successful I still think you should listen to at least that track of my cassette and see what your reaction is. Your opinion is important!

Also, when I met Kathy Acker I just said some really useless things and your interview reminded me about that incident (in a Toronto bar when she read here with Burroughs). Some woman was complaining that there was a man in the women's washroom photographing Kathy and she couldn't use the toilet. So when I caught Acker's attention, it was as if to say something nice or ask for info or an autograph. Instead I just told her about the angry woman waiting outside for her to finish and she said "It was none of my business." Quite right, I didn't make any money off of it.

I'm also involved in A. A. confessions, but I'm not even a fucking alcoholic.

Best Wishes,

Lawrence T. Hobson

Dear MONDO 2000,

With regards to your article on the subject of 'goo' last issue (entitled "A Quantum Sandwich"), we were happy to see that this magazine has discovered the basic principles of goo. While we have done extensive research in this area, it seems that you've only scratched the surface.

Some of what we say may not be able to be understood without the aid of synthetic substances, but I think you will get the general gist.

We agree that goo is fun to touch, look at, and play with, but there is more to it than just amusement... much more. Goo is a state of being, the ultimate state of being!

For a good model representation of what the state of goo is, mix in a bowl one cup of corn starch and one half cup of water. This will result in a white puddle in the bottom of the bowl—scoop it out and play with it. What you'll discover is that the quicker and more it is played with, the more solid it becomes. It will dry and crack as you roll it into a ball but the second you let go, it will regress back to a liquid. *Neato!!*

Motion, friction, tension, it all equals solidity. Just think of all those "solid" citizens, think of the uptight yuppies with their striated jaws clenching, power ties blaring, and walking off briskly to their power lunch. Think of General Schwartzkopf with his solid moral values, solid attitude, and solid sounding name. Think of the very solid protestant work ethic with its drive to produce, manufacture and build. Now think about goo. Think about goo's complete lack of power, its complete lack of drive, its complete lack of everything—responsibility, morals, ethics, judgement. Goo is absolute nirvana. Nothing can be done to goo, nothing can goo do... To achieve goo, one must become so immersed in relaxation and contentednesssssssss that one loses all respect for where his or her body ends and where the naughahyde couch starts. Achieving goo is rare now, for people have direction and purpose now—they are too happy with the fact that life shits down their neck. To them I say "Blllllaaahhh..." Granted, it is difficult to achieve this state. We were only able to come close, and that was with the aid of 1/4 gram of ecstasy and three hits of green gel acid. Just give it a try with the corn starch and water—it's incredible. I promise you will feel the door open... Goo means never having to say a damned word!!!

ONE WORLD—ONE GOOOOO!

Goo Foundation

J. P. Meheanondi

President... Dope

Oregon City, Oregon

Dear M2,

I just purchased my first issue of your rag and found it to be funny, irreverent, profound and addictive.

I have to take exception, however, with the interview with Avital Ronell ("Avital Ronell on Hallucinigenres," issue #4). The interviewer, Gary Wolf, questioned Ms. Ronell on the significance of her work, *The Telephone Book*. I found the interview quite con-

fusing and an attempt to push obfuscation to a new, higher level. I do not fancy carrying along *Webster's Unabridged* when I do most of my reading.

Regards from an Anti-Confusionist,

James McCall

Chicago, IL

Re: Genesis P. Orridge's "Muzak: The Concept of Manipulation Through Music" [Winter 1991]:

Much has transpired since Mr. P. Orridge excoriated Muzak way back when. Muzak has improved on the old phone-line and radio formats by transmitting via Direct Broadcast Satellite. The company has also expanded its repertoire from the "innocuous" elevator style to a choice of programs ranging from Top 40, Classical, Adult Contemporary and New Age/ Progressive Jazz, featuring such original artists as Bob James.

Background music has grown to suit diverse audiences. And while Muzak has changed to suit "foreground" tastes, both popular and, yes, precious "avant-garde" music have likewise appropriated Muzak principles by providing sounds that can be enjoyed peripherally as mood manipulators. Ex: Brian Eno's "Ambient" experiments, DEVO's *E-Z Listening Album*, the somnolent harps of Andreas Vollenweider and Angelo Badalamenti's Ray Conniff imitations on the *Twin Peaks* soundtrack. The idea of music as contour vs. performance is getting downright respectable these days. This is partly because the shopworn demarcations between so-called liberating rebel *artistes* and the depersonalizing corporation are now imperceptible, if not altogether invalid.

So, next time you go into a K-Mart, drop the sanctimony and listen with an open ear. In the end, everything aspires to the conditon of Muzak.

Sincerely,

Joseph Lanza, N.Y., N.Y.

Yo MONDO 2000:

Damn me for being observant but are y'all fix'n to fight 'n' die, or fuck 'n' be friends? It seems ya'll have forgot "Molly" and people like myself. We're the ones that cover your console cowboy asses while ya'll are dicking around in the matrix, and do the dirty "meat" work! And we like rock'n'roll

As a matter of fact most of us enjoy all types of music, (if it's performed well) but ya'll are gonna do an article called, "No More Fucking Rock 'n' Roll: The House Revolt." This kind of cavalier attitude towards people's musical taste is beginning to piss us off! But we would also be pissed off if you attacked people for their sex, sexual preference, race, religion, personal choice, job, etc. Ad nauseum.

It's tough enough for your average type dude/dudette to get through the day (and your sub/above types as well) without an attack on their preferred music or psychoactive stimuli, isn't it?

Now Molly has a special round in her big gun for people with attitudes like that.

I mean just because I personally don't care for some house music, should I go out and terminate Crystal Waters (hypothetically speaking) for "She's Homeless"/la-da-de-la-da-da and then burn the body so she can't be cloned? "Molly" and I could do the same with house DJ remixes, and club owners with them fuckin' karoake machines. There's a lot of hard work and suffering involved in the creation of music. Just being some rich boy or bitch with access to money, credit, hardware or software doesn't show that you've been bitten by the muse, it just shows that you can buy a muse or, for your Virtual Reality set, a Biomuse (O-Deity, O-Deity, O-Deity, give us reality). 'scuse me, I really need to calm down.

1: Music (Myoo'zik) N. (<Greek, mousike [techne], art of the muses) 1. The art of combining tones to form expressive compositions in conjunction (freq.) with a story or tale. (See muse)

And unless you've lived it, and truly feel it, you're not a musician. This is the reason I'm spewing forth rage and venom, especially when a publication I'd once considered on "the cutting edge" raves over a bunch of weenie girls (D'Cückoo) and a thing called the Biomuse. It makes me wonder if you've sold out to your advertisers and/or corporate interests.

Again "No More Fucking Rock 'n' Roll: The House Revolt":

Re-establish your objectivity. Do an article on Thrill Kill Cult, Sisters of Mercy, Alice in Chains, The Cult! Or me-n-Molly will just forget to renew our sub to your rag.

I mean until we're all afflicted with "cyber-psychosis," music is still created *for* and *by* people using machines! *Not* for and by machines using people.

Into the soul of the machine?

NEVER!

Sincerely,

Molly Williams

Tony Voodoo

P.S. We know you haven't got the guts to print this.

Come on now. You know *we always print the rants.*

Opinions expressed or implied in interviews, articles, titles, advertisements or page numbers aren't intended to religiously codify the belief systems of MONDO*'s editors, who often disagree with one another as well. This may seem obvious, but this same mistake is frequently made—albeit in a more stylistically sophisticated manner—by art and lit crits, politicos and trend watchers. Do you read me? R. U.*

Dear Mondoites:
I recently discovered your absolutely incredible magazine. This is truly what I have been dreaming about; a magazine that had articles on all my favorite people—from Warhol to Burroughs to Eno. I especially appreciated the interview with Kathy Acker, whom I consider to be one of the more interesting new writers in the world.

What really got me to purchase your magazine however was Xandor Korzybski's letter. Don't you know this kind of freedom of the press is dangerous? (Although very commendable). Please have more articles on those cute little gray aliens. Incidentally, they (the grays) call themselves the EBUs and are from the Zeta Retaculi Nine star system. If you meet one, don't tell the authorities or Air Force Intelligence and the FBI will show up at your door and demand you deny everything or they'll "take care of you." (Don't ask me how I know).

Good luck and have a pleasant tomorrow.

Adrian Forrest,
Santa Ana, CA

MONDO 2000,
I was at the DNA (in San Francisco) not long ago for the Renaissance Group's kickoff and had the chance to see Marci Jarvil dancing in the corner for cameras while some whiz kids presented a realtime video jam of her on the big screen. The graphics and effects were first-rate, quality work—I've seen enough to know. At the same time, I was watching the dance live from a perfect perch on the upper deck, and I can tell you that however fantastic the video, it was nothing next to the sheer unadulterated pleasure of watching Marci herself.

Do you get it? You can watch the video over and over, while the real performance is no more than an ephemeral event. But there is a truth to a real body (particularly Marci's) sweating and working through real motion that the tape and effects simply cannot capture. Nothing virtual about it.



and yet more John Barlow

And while I like D'Cückoo, the cyberband... let me tell you how that evening ended. Sometime during their set, after thinking about what hot property those women are (like I do every time I see them), I felt the need for fresh air. The rain was falling softly, the street was quiet and glistening after the hectic atmosphere of the club. I wandered down the block, and outside the open front door of Slim's, I had to stop. Blues was spilling out onto the street—wailing, gutsy blues. I stood by the door, rapt, as I listened in on their last numbers.

Back in the DNA, doing my best to plug into D'Cückoo again, my feet were moving but the spirit was gone. The women work hard, and they lay down some righteous rhythms, but it is still head music, engaging the intellect and leaving the body behind. I missed the blood and guts, the visceral hit, the juice that drags you along, howling, instead of merely appreciating the viewpoints.

Do you recognize any pattern in all this?

I am a newcomer to the scene, but I've been around. Many of you have seen me, some of you have met me (including you, R. U.). Cyberthon, perhaps, the Verbum Be-In or the conference at Cathedral Hill. A few things seem clear to me.

Virtual Reality. Is it coming? Definitely.

At the moment? Try as I might, I can't shake the impression that there are maybe ten people doing good, substantive research, and hundreds more who spend their time writing about each other and going to parties. Am I wrong? In one issue of *MONDO*, John Barlow is interviewing; in the next, he's being interviewed. Is anyone out there making it happen?

Tech alternatives to reality are on the way, but hear this Mondoids: real reality, anchored in the flesh, is not yet an antiquated concept. Even with superchips and all the full-body tactile feedback suits you can imagine, there is a dimension that, ultimately, VR will still lack. Reality is so much more than visual input. Take your techno-trips, tell each other how far out on the edge you are, but remember that the world outside has depths and textures so rich that it's hard not to be overwhelmed with the sheer *muchness* of it all. Now how are you going to offer an experience this powerful through eyephones and binaural sound feeds?

I don't think you will. But if you do, let me know. 'Cause I'll be waiting for you.

Sigerson
San Francisco, CA

Greetings, Techno-Tyros!
There is a phenomenon afoot in the universe known as the Schweppes Bitter Lemon Space-Time Eddy Distribution Anomaly. The way it works is this: Schweppes Bitter Lemon soda, easily the most delectable nonalcoholic beverage concocted on this benighted little orb we call home, is not readily available in most stores. In point of fact, even stores which have stocked it once cannot be assumed to be carrying it at any other time. This is because Schweppes Bitter Lemon is not distributed by the normal means

(aeroplanes and trucks) which keep the shops of the world plentifully stocked with many other delicious and effervescent beverages. Schweppes Bitter Lemon, because it is so exceptionally delightful, is sent out from the factory in small unmanned spacegoing vehicles which float through Space, where they may be picked up by non-Terran travelers. The idea, of course, is to provide an enjoyable bibulatory experience for these extraterrestrials as a drinkable diplomatic corps on behalf of the Earth. The program seems to be a success, although non-Terrans rarely return their recyclable bottles. Apparently they are unconcerned with getting their five cent deposit back. It is only due to the occasional influence of eddies, whorls, or whirlpools in the space-time continuum that Terrans ever get to taste Schweppes Bitter Lemon at all. Occasionally, a Schweppes-bearing vessel will be caught in such an eddy and the Schweppes afficionados will no doubt snap it up immediately.

I know that this is true, because no matter how often I ask my grocer to please make sure to stock Schweppes Bitter Lemon, and no matter how often he promises me that he has, I can never find any. Some grocers I've asked have never even heard of the stuff, although they are familiar with the rest of the Schweppes product line.

It has occurred to me that perhaps the same phenomenon is responsible for my utter inability to find a copy of *MONDO 2000* in Northern Ohio. Since I have moved to the vast unflowering plains of Ohio, I have been wholly unable to find even one copy. After phrantic phoning and considerable schlepping around, I don't think any news dealer in the entire state has even heard of it.

So, since I can't simply nip up to the neighborhood newsstand any more as I once could in Boston, I have broken down. I'm subscribing.

Thanks very much, O Ye Riders of the Radar Range. I'm looking forward to hearing from you.

Relentlessly,
Johanne Blank
Cleveland Heights, OH

Dear MONDO,

We are writing to alert you to an insidious and threatening covert action being undertaken by our government against the minds of casual drug users.

The press has reported recently on scientific experimentation with marijuana, specifically research that has resulted in the isolation and identification of the brain receptors associated with the marijuana "high." Although researchers claim to have stumbled upon this discovery "accidentally," it has been acknowledged government policy since the Ford administration that the only research permissible is that which seeks to counter the "negative" euphoric high.

The disorienting effects of the drug, however, have been of great interest to the intelligence services for the past 50 years: beginning with the OSS's experiments with the use of a cannabis extract as a truth drug and continuing through other projects instituted by the CIA and the Defense Department, such as operations Chatter, Bluebird and MK-Ultra. The CIA has also experimented with a microwave amnesia beam designed to destroy memory neurons.

We now have every reason to believe that they have succeeded in reaching—after decades of research—their terrible goals of developing a psychotomimetic-amnesiac. The CIA has found a way to manipulate cannabis in such a way as to permanently debilitate the brain's memory capacity. It is only a matter of time before we are confronted with a "mysterious" epidemic of 30-year old Alzheimer's victims.

The drug called JJ-180 (also known as Frohedadrine), was the product of research done on the normally benign short term memory loss effect of cannabis. JJ-180 imitates this same process, but with debilitating results. The amplified FX of JJ-180 lead to permanent and massive loss of both short and long term memeory. The insidious aspect of this is that the marijuana user is already acclimated to the normally transitory effect on memory, and JJ-180 exploits this by a gradual onset, which soon increases exponentially, until the victim can no longer remember what it is that me/she has lost.

Seized marijuana is laced with JJ-180 and then resold on the streets through the off-the-books government-run drug network, which is used to distribute the drugs of "friendly" cartels, like the Contras.

We cannot emphasize strongly enough the danger that all marijuana users are currently being exposed to. The nature of JJ-180 is such that by the time you begin to realize that *something is wrong*, you can no longer remember what it was like when something wasn't. However, in an attempt to determine whether you are at risk, we include the following list of warning symptoms:

1. Inability to remember where you put your stash
2. Forgetting what it is/was you were supposed to do
3. Losing your sense of place or time on a regular basis
4. A tendency to not remember from moment to moment the logical thread of what you were saying

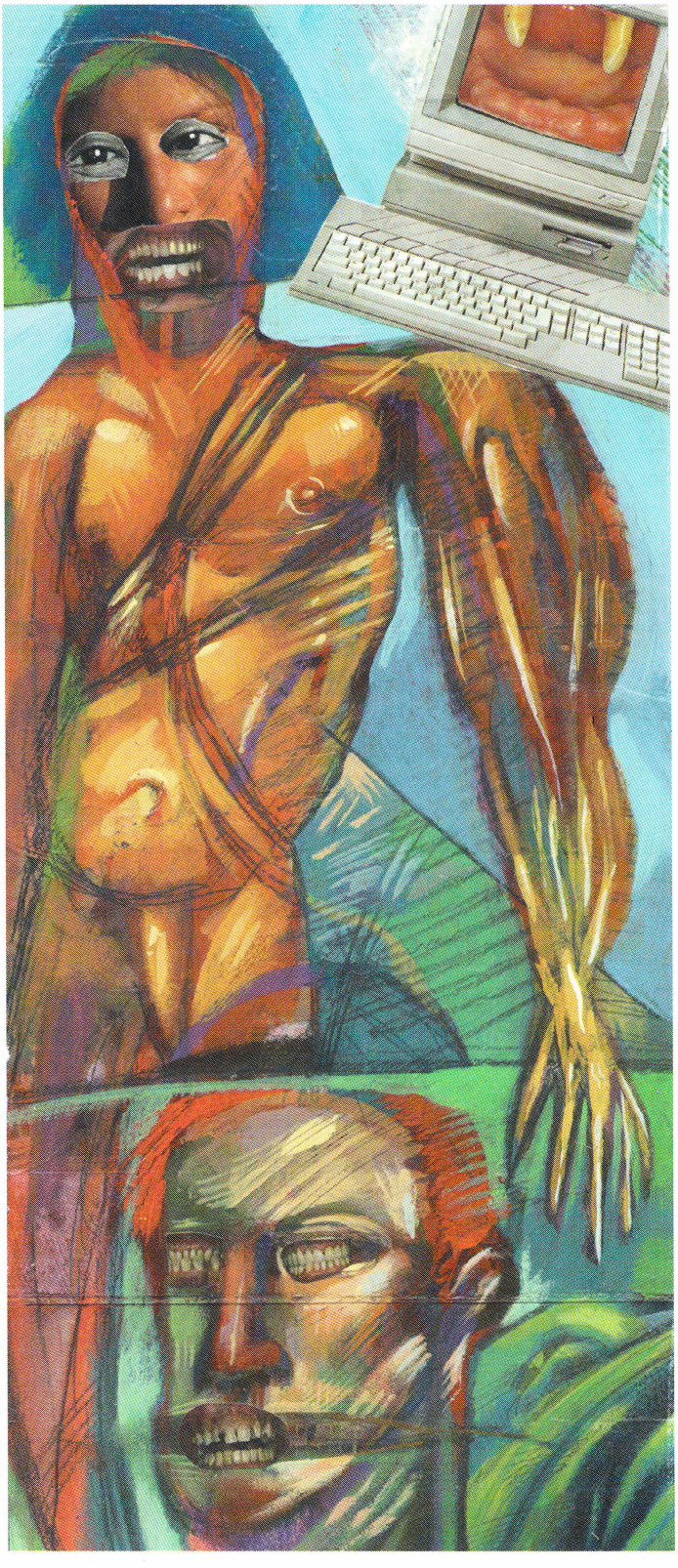
If upon reading the final sentence of this letter you can't remember what the hell it is we are talking about, you should immediately cease all use of cannabis from unknown production sources.

Sincerely,
Daniel J. Casolaro
Cambridge, MA



PMS with Broken Windows

—It's a Virtual Motherlode of Pain



Kevin Evans

Somerset Mau Mau

Somerset Mau Mau has burst upon the scene with a powerful new program that packs a wallop worthy of the old Marquis himself! It's brutal!! It's intense!! IT'S A WHOLE NEW WAY TO HURT!!!

PainMaker Sade With BrokenWindows is the surprisingly popular Operating System upgrade from Mau Mau's *S & M & M Not-So-Soft*, the creators of *Dark Goddess-In-The-Box* and the *Virtual Ritual Miracle Maker*. With *SMMNSS* and his *KaliFornica Ram and Prom* currently recording profits in the gigadollars, CEO Mau Mau now stands astride the industry like a colossus of rogues, dominating mercilessly in the "Dark Soft Underbelly" market, that virtual subculture peopled by the malcontent chaos junkies, quasi-mutant pseudosatanists, subversive dominatrices and dead people of cyberspace. (It just shows you how far Mau Mau will go to get customers, when he starts selling stuff to dead people...)

It Hurts When I Wiggle My Mouse

I must confess, I had grave misgivings about getting involved with another Mau Mau package. Certainly, the first version of this



operating system—*CrackedWindows* (with Bullets of various calibres, and Baseballs, Rocks and Little Human Heads as icons) was a masterstroke of demented genius. But the text, crammed into the perpetually mutating Mandelbrot Fractal viewing environment, was virtually indecipherable. I procured a nasty case of Carpal Tunnel Syndrome from constantly twisting the monitor around at my workstation.

Icons are Religious Graphics

With this upgrade, we are again subjected to Mau Mau's dark, quirky vision. We are obliged, like it or not, to work with the Mau Mau Pendulum Finder. It's shaped like a broadaxe. The trash can is replaced by The Pit or Abyss symbolized as a small black hole where you discard unwanted files represented as Little Bearded Men hanging by chains. A nice touch, I thought. However, The Platform holds some unpleasant surprises...

Terror on the Desktop

You virtually have to *beg* for file information. And the retrieval system is torturously clumsy and slow. Also, don't try to import in an unrecognized file format! The translation utility, Krazy Doktor, is capricious and full of bugs. The program often hangs up and leaves your Little Man hovering over The Abyss. You can't do a cold boot, you can't even pull the plug on your computer. If you try anything the program crashes and burns and takes your hard drive with it! YOU CAN'T DO ANYTHING UNLESS THE PROGRAM WANTS YOU TO!!

Help Me! I've Fallen and I Can't Get Up and Running!!

You may as well forget about help screens. There aren't any. The tutorial—Nazi Storm Trooper (sold separately) is virtually bulging with disinformation, calculated to lead your Little Man and your precious files over The Edge and into The Pit where they are wiped from memory. But that's not the worst of it. Nasty Accident, the file manager, has the habit of eating your data for no apparent reason and then flashes the ubiquitous "TOUGH BREAK, CYBERSLIME!" message at the bottom of the screen. It's cruel and heartless and unforgiving and YOU NEVER QUITE KNOW WHERE TO PUT YOUR MOUSE!! If you click on the Thumbscrews, the keyboard spacebar becomes inoperative. If you click on the Handcuffs, you can't access the outer keys. Click on the Whip or Clothespins and the screen sputters for a moment and then fades to black. You must then free up a couple more megs of memory just to buy your way back into the environment. Your best bet is to click on the ? icon, the BlindFold. The odds are 50/50 you can at least get some work done and actually save a file to disk, ferhevenssake! Though you are, for all intents and purposes, virtually STROKING IN THE DARK.

The Silence of the Lambskins

The communication package, GagComII with Knuckle Sandwich, which boasts D & S & S & M-Modem protocols, is openly user-hostile. The features MaleMerge, ShutUp!, ByteMe! and Boot My Unit! are all hit or miss. CornHole in the chat mode makes for too-tight operating parameters even with the help of HogTie batch files with doors to DOS. It's so frustrating going in for the first time that you just want to scream and yet, it *is* worthwhile and even *enjoyable* in an odd sort of way...

Inquisitive Minds Want to Know

PMS comes bundled with a utility called the Iron Maiden for compressing files. To decompress there's a little program called The Rack. When the file is unzipped, a short animation sequence shows blood squirting out of the little man's orifices. And though you *can* control the size of your cursor, (shaped like an Erect Penis in *PMS*), if you run with the highest setting for too long a bug in the system cuts it in half right when you least expect it. Once again, blood squirts out of the little man's orifices.

A New Paradigm of Pain

After several hours of this digital abuse you might expect some sort of relief. Unfortunately, the discomfort merely continues to intensify. Then, just when you think you've reached your final threshold of mortification and embarrassment, when you are certain you can't take any more shame and degradation, *PMS* lifts you up to a new crescendo of self-loathing and anguish, onto a Desktop and into an environment so repugnant and disgusting yet oddly compelling that it virtually reeks of dysfunctional computing and revolting table manners.

Suite Surrender

Since virtually all avenues of escape from the program are blocked, my advice is to just give up and take your medicine. That is, after all, Mau Mau's consistent message through the years and one that he drives home with relentless fury in this challenging package. So just give up and buy some more software. Sell your car if you have to and move into a cheaper domicile.

Keep your eyes peeled for Mau Mau's new entry into the NecroFile market due out next Winter: *Boarded Up Windows—The Post Apocalyptic Computing Environment.*

I *virtually* shudder just thinking about it !!

The communication package, GagComII with Knuckle Sandwich, which boasts D & S & S & M-Modem protocols, is openly user-hostile

For more of the same biting, cutting edge, high tek humor in a variety of formats, write to Somerset Mau Mau, The Discount House of Healing, 1537A Fourth St. #49, San Rafael, CA 94901



ROBOFEST II, *Austin, Texas*

Discovery Hall, a hands-on science museum for kids, hosts Robofest, a look into the art and soul of technology. The show is loosely based around the "Robot Group," an Austin-based gang of technical experimenters, artists and engineers. For almost three years they have been turning out a series of crazily brilliant pop-culture robots, from robot blimps to robot heavy metal bands.

Rob Hafernik

PHOTOGRAPHS BY MARTHA GRENON

ALEX & THE ROBOT GROUP: BLIMPS

Alex Iles and several other members of the Robot Group are working on one of the blimps. Earlier, the biggest blimp had been sailing all around the room, under the control of Brooks Coleman, Robot Blimp Pilot and general tinkerer. The booth that the blimps are based in is littered with spare parts, circuit boards, computers, cables and the odd power tool.

MONDO 2000: How long has the Robot Group been together?

ALEX ILES: Since the summer of 1988.

M2: Who is in the Robot Group?

AI: [*Starts pointing around the room*] Well, there's Bill Craig, David Santos, Brooks Coleman, John Witham, John Lovgren, Mark Dommers, Craig Sainsott, Tim Sheridan and some others.

M2: Would you call this robotics as an art form?

AI: We started with robotics as an art form and then we got interested in the idea of artificial life. We don't want to do robots with a point, because robots with a point are boring. If you forget about having a point, then you get stuff like this. [*Sweeping gesture*]

M2: I've heard this referred to as "smart art"—what do you think of that categorization?

AI: I think that studying intelligence and making robots is the ultimate art form because it's studying yourself. There's no way you can understand someone else's intelligence; all you have is yourself. It's the ultimate self-expression.

M2: What kinds of robots do you want to do next?

AI: We want to make these guys intelligent enough to interact with each other and with people.



Robot Blimp from a video by John Witham

M2: You mean have them inhabit a building somewhere?

AI: Yeah, maybe something like that. We've got several different angles. One angle is education. We've got a program with one of the local junior high schools where we're teaching the kids how to build robot arms and how to program them with microcontrollers. There's the blimp project. There's the robot music and the walkers, too. And the mannequin project.

M2: What's the mannequin project?

AI: This guy here. [*Points to a stick-figure robot with a flat face and sonar sensors for eyes*] He can pick a person out, turn his head and watch them as they go by. We broke him on the way in or he'd be working right now. It's a lot of fun to watch people interact with him.

There's been talk about getting together with some of the folks that make latex human figures and animating them. We'd like to build a figure that would sit in an airport, apparently reading a paper. After a while people would realize that it's a piece of art and gather around to look at it. Once enough people gather, it would come alive and rip its face open and reveal the robot inside. Right now we're also working on a play for robot actors. It's about a couple of robots sitting around having a philosophical discussion about organics. The only living thing in the play is a daisy on the bar. We're trying to get some funding from the city to produce it. I've also been consulting with a modern dance person on doing a dance about Cyberspace using robots as performers.

M2: So you're getting hooked into the art world in lots of ways?

AI: [*Laughs*] Yeah, but they don't know how to treat us. We had a woman call from *Art Forum* magazine. She said she needed a *picture* of cyberspace! We thought about it and decided the best we could do would be to send her a picture of a telephone.



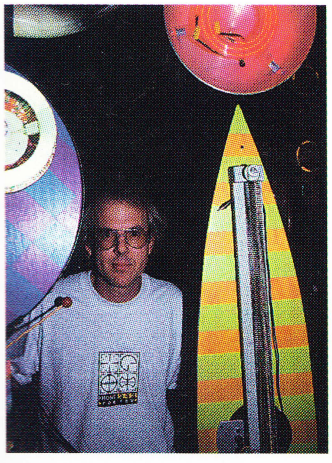
Austin Robot Group: Top, John Witham; Middle row, left to right: Bill Craig, Tim Sheridan, Alex Iles, Karen Pittman, Brooks Coleman Front row: Mark Dommers, David Santos, Gilbert Andreas, Fred Mitchim

Craig Sainsott: Shrinking Robot Heads

Craig is at a keyboard behind a screen. Out front is a bizarre assortment of robot musicians. Looking like a heavy metal band gone crazy in a junkyard, the members are all different sizes and shapes. Identifiable parts in the ensemble include bicycle wheels, toilet tank floats and the lid from a wok. Painted every possible color and adorned with neon lights and LEDs, they stand still, waiting between sets. When Craig returns with a new charge of compressed air to power them, they jump to life with a thumping, clanging rhythm section and wailing melodies.

M2: What do you call this thing?
CRAIG SAINSOTT: Shrinking Robot Heads.

M2: [*Laughs*] How long have you been working on it?
CS: Well, Morocco Man—the one with the paddle tank floats—I finished last summer. Then there's Big Mac—the one with the horns and fluorescent lights—I started him last summer and just finished recently, along with the other ones there.



Craig Sainsott with members of Robot Band

M2: What was your aim in creating these, visual art or music?
CS: Both. I wanted to get something that would actually sound like legitimate music. Now, as you've heard, it's very stiff and everything is done by poking numbers into the computers. I intend to have a MIDI interface so that I can play it more realtime. [*Excuses himself for a moment to loose the music on some children wandering by*] These heads have speakers in them too and I use them to play tapes through.

M2: What's next with the band? Going on tour?
CS: [*Laughs*] I'd like to make them more compact—have multiple instruments in one free-standing sculpture with an on-board computer that I could put in an office or home situation with multiple programs in it and maybe a little interface in it between the viewer and itself. It depends on what I find, too...

M2: [*Laughs*] I take it this was all built from spare parts.
CS: Right. Old shock absorbers, the paddle tanks and so on. If I find something I really like, I'll buy it if it's not too expensive. I scrounge a lot. I found that big spring at a truck stop. I get a lot of surplus catalogs and look through them trying to find bargains and oddities. I just build as I find.

Brian Park and his Phlogiston Chair

M2: How long have you been making the Phlogiston Chair?
BRIAN PARK: I came up with the chair design in 1979 and made a prototype. I believed that it was way ahead of its time. Once I started trying to sell them, I found that to be true.

M2: How did you get the idea for the design?
BP: The chair is based on floating and zero gravity. As soon as you go up in the Space Shuttle—into zero gravity—your body finds its own balance, your legs and arms and back all sort of float around until they find their own balance, a position with no tension. I thought this would be a very useful posture here on Earth, if I could reproduce it. You can approximate this sort of sensation in isolation tanks, but that's sort of artificial and, uh... *wet*.

We built this chair back in 1980, but it was just too far ahead of its time. So I took work as a product designer and engineer. When I got fired about two years ago, I decided to move to Austin and see if it was time for the chair yet. By that time, Virtual Reality was starting to make its way on the scene and I began to see that this chair could be used not just for meditation, which was its original purpose, but also for work and play in Cyberspace.

M2: So it's those diverse uses that you've got set up here.
BP: Right. You've got the work station in the middle, a rest station on the left and a play station on the right. The work station uses the Sense8 software, rigged up with a projection system and a space ball built into the arm of the chair. It's a complete environment. The angle of the view surface is normal to the head, so there is very little stress. The work station has a large screen TV and the rest station uses meditative goggles.

M2: So the chair gives you a stress-free physical environment for working in Cyberspace?
BP: As soon as you put on a headset and start looking into Cyberspace for a few minutes you say "My God this thing is heavy and awkward. To heck with it. It's not worth it." I agree with Negroponte and John Sealy Brown. The computer needs to become totally integrated into the environment, with large flat screen TVs becoming the norm—replacing the desk. You're working with your brain and fingers for the most part. What you really need is a minimal stress environment and that's what the chair provides. You can stay in the chair and stay focused on your work for long periods of time. It allows you to really settle into Cyberspace. M2



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ASCII NO QUESTIONS, *Tell Ye No Spies*

What if you saw Congress trying to pass some invasive, repressive laws? And what if, single handedly, you could nullify these laws, forever?

Would you do it?

Senate bills S266 and S618 posed just those questions to Philip Zimmerman, a Boulder software engineer. Because Philip specializes in privacy protection for his clients, he was acutely aware of the implications they posed.

MONDO readers will recognize these bills before Congress as designed to fight "terrorism" and "violent crime." They both have language, however, requiring government-accessible "back doors" in all encryption software produced or sold in the United States. What that means, in practical terms, is that the government could read your private, encrypted messages and files *at will*. Or anyone else with the necessary know-how. Sort of like requiring you to give copies of your house keys to the cops. Theoretically, court authority would be required, but the actual potential for abuse is obvious.

So how did Philip choose to challenge the power structure's brazen attempt to invade our privacy? Did he complain to his representatives in Washington? Organize a protest march? Send a letter to the editor of *The New York Times?* Grouse volubly on the BBSs? Nope—Philip Zimmerman took direct action. Taking several months off from his regular paying customers, he wrote the *definitive encryption program for the masses.*

PGP—Pretty Good Privacy—it's called. It's a textbook example of guerrilla activism based on the Rivest-Shamir-Adelman public key cryptosystem. Currently, RSA-based systems are the most advanced cryptographic technology available. Though it's extremely sophisticated technically, it's quick and convenient to use. And, barring some unlikely breakthrough in the mathematics of factoring very large numbers, they are the ultimate in unbreakable codes. *How* unbreakable? With PGP and your personal computer, you could create a code that would take a Cray super computer centuries to break. Now, that's Pretty Good Privacy!



Khyal Braun

Norman French

The U.S. and other governments have paid millions to achieve similar levels of encryption security. So how much will you have to pay to get a copy of Pretty Good Privacy? Approximately nothing. Philip decided the best way to counter legislative threats to privacy was to give his program away. By releasing PGP as freeware, he made sure it would have the widest possible distribution—too wide for the FBI, MI5, MI6, DIA, NSA, KGB, or any other alphabet agencies to suppress.

PGP was released on June 5 (D-Day minus 1) onto scores of networks and BBSs. Since then, it has been copied onto countless systems in North America and around the world. Now, even if S266, S618 or similar laws are passed, it's too late. The secret is out. The PGP genie can *never* be put back in the bottle. With PGP, you and your friends can have Mil Spec quality encryption for your messages and records. Affordable privacy is at your command, without back doors and without permission from Uncle Sam or anyone else.

Being a techno-activist isn't all fun and games, however. As mentioned, Philip Zimmerman took time away from his business to get PGP out the door. The income lost during that period has been a real financial hardship for him and his family. In addition, a company called Public Key Partners (PKP) has threatened to sue Philip. PKP controls licensing of the RSA algorithm he incorporated into the PGP program. Whether he will be sued has not been determined as of this writing. Nevertheless, that very real threat hangs over Mr. Zimmerman's head.

Though Philip hasn't asked to be rewarded for his labors, you might consider sending an appropriate donation if you find PGP to be of value to you. $50 sounds like a reasonable number, but you might revise that up or down depending on how much you value your privacy.

To get your own copy of Pretty Good Privacy from an anonymous FTP site on Internet or elsewhere, you will need two files: pgp10. zip for the binary executable and the user documentation, and pgp10scr. zip for the source files. These files are compressed, but you can decompress them using the MS-DOS shareware archive utility, PKUNZIP. EXE. Be sure to print out the "PGP User's Guide" in pgp10. zip. (Remember to set mode to binary or image when doing an FTP transfer.)

In the U.S. or Canada, PGP files are available on Internet at FTP sites uunet. uu. net in the /tmp directory and at host gatekeeper. dec. com, directory /pub/micro/msdos/pgp. They are also available in North America and overseas on Fidonet and innumerable BBSs. One such BBS is in Boulder, Colorado at (303) 443-8292.

If you would like to contact Philip Zimmerman, his address is: Boulder Software Engineering, 3021 Eleventh St. Boulder, CO 80304; phone: (303) 444-4541; Internet: prz@sage. cgd. ucar. edu.

Silicon Graphics IRIS INDIGO

Jas. Morgan

What do NASA, Coca-Cola and the folks at Industrial Light and Magic have in common? They all rely on Silicon Graphics high end workstations for glorious 3-D computer graphics. Now Silicon Graphics replaces the $20,000 Personal IRIS as SGI's entry level machine at a base price of $7995. The IRIS Indigo is the first serious indication that the PC and Workstation communities are converging.

The Indigo is a small, powerful platform capable of SIGGRAPH quality graphics and Top Ten digital sound. About the size and shape of a Mac Classic, it's designed to sit on a desktop alongside a 16 or 19 inch color monitor, PC compatible keyboard and mouse.

The most beautiful aspect of the Indigo design is it's ease of use. It features a graphical user interface called Workspace which transforms the rather tedious UNIX-based system into an intuitive digital sandbox.

From the memory standpoint, the basic machine holds 8 MB of RAM, which is expandable to 96 MB. On the disk side you can put a 1.3 GB DAT tape drive, a 236 or 432 MB hard drive or 1.44 MB floppy. Any combination of these four devices is possible in any of three slots located behind a panel on the box. Each of these these devices are easily insertable and removable with the flip of a green lever.

Harken audiophiles! The most fully realized aspect of the Indigo is audio. Indigo has the hardware capability of being a CD or a DAT mastering station. On the CPU card there's complete analog and digital audio capability. That's 16 bit analog samples and 24 bit digital samples. And it does complete stereo A/D and stereo D/A conversion at sampling rates of 8 to 48 khz. The DAT carries the full audio over the SCSI connection to the computer as well as digital storage. You can master music out to a DAT or you can plug it in and play the DAT tape directly out of the machine or the speakers.

To meet cost goals, Indigo was designed with a Virtual 24™-bit color graphics system: an 8-bit frame buffer with 24-bit compatibility. Future plans include 24-bit graphics and faster CPU options.

For videophiles, optional video cards—such as Lyon Lamb's recently announced video animation controller card—will enhance the Indigo in terms of power and sophisticated features. Third party software developers like XAOS, TimeArts, Digital Arts, Pixar and VPL are offering a wide selection of applications including modeling, rendering, animation and digital effects.

There are nearly 1500 software packages that are available for the Indigo system, making sophisticated visualization technologies available to the Color Publishing, General Research, Geoscience, Life Science and Mathematics communities.

SGI has a direct marketing organization called "SGI Express" through which the IRIS Indigo can be purchased by calling 1-800-800-SGI1 (7441). M2

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Techno Shorts for Audiophiles

Tech-Heads can never get enough high-technology toys in their lives, so here's a list of some of the most current crop of technological marvels to hit the stores.

—E. T.

Edward Tywoniak

Bang & Olufsen, world-famous European consumer hi-fi manufacturer, has made its reputation on building systems that not only sound great but also look and feel like no other. B & O systems have even made it into the Museum of Modern Art for their aesthetic design. Their new **Beosystem 2500** is true to this spirit of form and function. Space age to the max, the Beosystem 2500 contains a CD player, cassette recorder, AM/FM tuner and a pair of active bi-amplified speakers. The self-contained unit, including speakers, fits neatly on any tabletop, and delivers an incredibly large sound from such a relatively small package. The visual impact of the system invites you to touch it—and as your hand passes near the central control panel, two glass doors slide silently aside, revealing the full array of controls. The unit also comes with a full-function wireless remote control and a choice of speaker grill colors. Hear—and see—this!

M Technology, the Monster Cable folks, who brought the world the ultimate in speaker wire and cabling technology, has made the jump into consumer audio hardware systems. Their first entry into this field is the **Persona One** powered personal speaker system. Designed to be used with the newest generation of portable CD and DAT sound systems, the Persona One is a



fully contained speaker and amplifier system that features separate volume and bass controls, a robust mounting system, small size and a proprietary Ambience Recovery System (ARS) which delivers accurate sonic imaging. The Persona One is at home on the road, in an office or anywhere high-quality sound in a small package is required. The system also works well with video surround-sound systems and for audio playback of computer multi-media setups. M Technology is located in South San Francisco.

Sony has just released a new professional portable DAT (Digital Audio Tape) recorder for the film or video industry or for anyone needing the ultimate in field recording technology. Dubbed the **TCD-D10 PRO**, the 4-pound unit sports all of the features for professional audio recording, including remote control, rechargeable batteries, digital I/O, balanced microphone inputs, excellent noise specifications and a 48KHz crystal reference sync capability that eliminates the need for an external resolver.

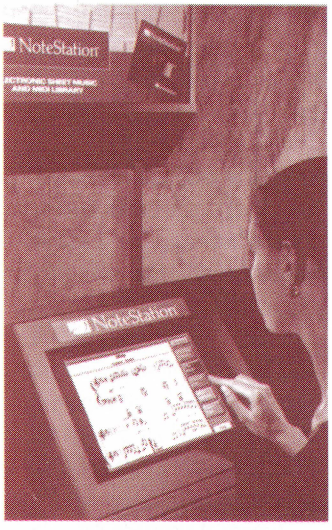
For owners of an Atari computer system interested in desktop audio editing: **Hybrid Arts, Inc.** has just released their **Digital Master**, a digital audio computer-based direct-to-disc recording system. The Digital Master features 16-bit stereo sampling with 64 times oversampling and up to 14 hours worth of recording time. The unit contains MIDI and SMPTE interfaces as well as AES/EBU digital interfaces, and allows for non-destructive editing, time compression and digital filtering. The affordable price of this complete turnkey system finally puts virtual audio into the hands of the masses.

For those who don't have to worry about a budget, **Yamaha** has just released their **DMR8 Digital Mixer/Recorder**. The DMR8 is a completely integrated all-digital recording and mixing system that represents the state of the art in turnkey digital audio systems. Designed like a conventional analog recording console and tape system, the unit is easy to use while still offering the tremendous capability and flexibility of an all-digital system. The audio specifications of the DMR8



are truly impressive, but its ease of operation is equally awesome. The digital age has arrived and is destined to change the world of professional audio forever.

As the world rapidly plunges towards an all-digital virtual environment, even musicians who still play their music from traditional scores will benefit from this new space-age technol-



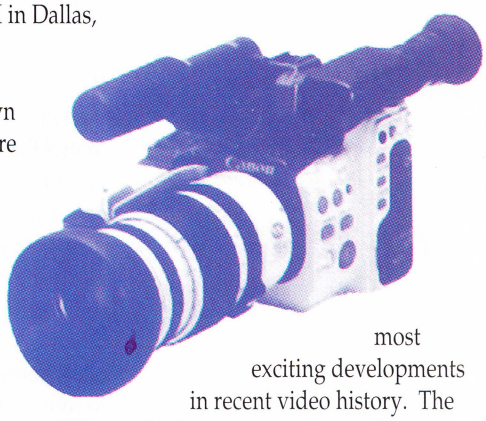
ogy. **Musicwriter, Inc.** has just begun to install their new **NoteStation** electronic sheet music system in local retail music stores. Musicians looking for sheet music of their favorite songs will be able to access this new on-line system that will print out their favorite scores in any desired key for any instrument. You can request the complete score, or, if only an oboe part is desired, you can just print that. The user-friendly full-color video display screen on the in-store kiosks will allow users to access songs through a variety of cross-referenced menus, ensuring that purchasers will easily find their song title. You can even request a MIDI data disc of your song if you want to hear what it sounds like. This could be the automated teller machine of the music world.

Sometimes hearing sound is not enough, especially if you are just learning how sound works. Well, if you are interested in a career as a professional audio engineer, you may want to check out the **California Recording Institute** located in Menlo Park, California and their groundbreaking **Visual Imaging** learning system. Students at the Institute not only receive hands-on training in a world-class recording studio environment, but they can learn about placement and location of sound through a revolutionary new system developed by institute director David Gibson. This allows you to *see* a realtime 3D visual representation of what you are hearing. Actually seeing the sounds that you hear—placement, volume and dynamics—is an uncanny experience that must be seen to be believed. This is definitely cutting-edge stuff that will have you drooling over the eventual consumer application of this technology. Move over, laserium.

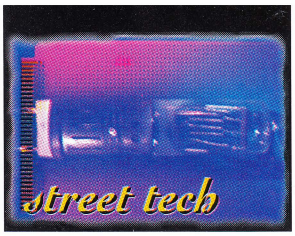
If listening to cutting-edge music is of more interest to you than making your own, you may want to check out the new CD series of computer music called the **CDCM Computer Music Series**. This new series is from the **Consortium To Distribute Computer Music** and is available on **Centaur Compact Discs**. The first ten volumes in the series are already available and feature a full series of digital recordings of new, significant computer compositions from American composers. Featured artists include Larry Austin, Richard Teitelbaum, Neil Rolnik, Salvatore Martirano, Joel Chadabe, Jon Appleton, David Tudor, David Rosenboom, Anthony Braxton and many, many others. The quality of the recordings and the compositions themselves make this a series that anyone interested in serious computer music must check out. Available from CDCM in Dallas, Texas.

If making your own computer music is more up your alley and you already own a significant MIDI rig, then you need to check out the **Studio 5** from **Opcode Systems** of Menlo Park, Ca. Designed as an intelligent MIDI interface/processor/synchronizer/patchbay, the Studio 5 does just about everything including making your breakfast in the morning. Based around a Motorola 68000 microprocessor running at a 16MHz clock speed, the Studio 5 can handle up to 240 channels of MIDI data with the capacity for additional signal processing and mapping. The unit communicates independently on each of its 15 MIDI input and output ports and will convert SMPTE timecode into music industry standard MIDI Time Code (MTC). It also comes bundled with Opcode's proprietary Opcode MIDI System (OMS), allowing the user to define a complete virtual computer music setup and share this information with the other extensive software packages available in the Opcode catalogue such as Vision, Galaxy, MAX and Track Chart.

Of course, maybe sound isn't your bag at all—maybe video is what makes your heart go aflutter. If that's the case, then you will certainly want to check out the new **Canon L1 Hi-8 Video Camcorder.** This ultra-sophisticated camcorder is one of the



most exciting developments in recent video history. The L1 features interchangeable lenses, built-in special effects, 2-hour recording time, a 7-mode high-speed shutter and a high-quality audio microphone. The lightweight unit comes with a carrying case and offers a variety of add-on options. What makes the L1 such an amazing unit is the quality of the pictures it produces—again, you have to see it to believe it—which comes from the Hi-8 video format. Other companies now offer complete editing systems for the Hi-8 format. High-end video is now available to the person on the street. So if you don't like the news that you're watching, go out and tape some of your own! M-2



Bargain Basement VR

Gareth Branwyn

The race is still on to build a cheap VR rig so that lots of experimenters can climb into cyberspace to have a look around. One system that has recently caught the attention of high-tech tinkerers was built by Randy Pausch at the University of Virginia's Computer Science Department. The simple wire-frame system is constructed around an IBM 386 PC, a Polhemus 3-Space Isotrak (for tracking head position), the Mattel Power Glove, and two Private Eyes [*see* Street Tech, *Issue* #3]. This crude but full-functioning rig was put together at a total hardware cost of only $5000 (minus the PC). It was developed as part of a project which would allow severely disabled children to control devices through gestural commands. The Mattel Power Glove was seen as a good choice for an input device because of its low cost and widespread availability. The glove, designed as a peripheral for the Nintendo Entertainment System, usually has an encrypted data stream between the glove and the game deck, but given the goals of this project, the manufacturer provided UVA with a decrypter, allowing it to function as an RS-232 serial device. The dual Private Eye display can be mounted on either a baseball cap or on goggles and weighs a total of 6 ounces. The researchers have conducted experiments in both stereoscopic and bi-ocular viewing. The only hardware the group plans on adding is a voice-input device to allow spoken commands as well as hand gestures. A major drawback of this bare-bones system has been the lag time in the Polhemus Isotrak. A new position-tracking device called the Bird from Ascension Technology would cut lag time from the 150-250 millisecond range of the Isotrak down to 24 milliseconds. The new tracker sells for around $3,000.

In a paper which appeared in the *Proceedings of the ACM SIGCHI Human Factors in Computer Systems Conference*, April 1991, Pausch offers some research observations which may be of value to other penny-poor developers:

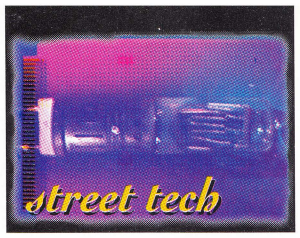
- **Quality of graphics is not as important as interaction latency.** "If we had to choose between them, we would prefer to decrease our tracking lag than increase our graphics capabilities," says Pausch.
- **Stereoscopy is not essential.** Experiments with bi-ocular and monocular versions have shown that people have no trouble maneuvering and interacting with objects in the virtual environment using non-stereo viewing. Stereoscopy also slows down graphics by a factor of two and quickly drives up the hardware cost.
- **A ground plane can be extremely useful.** "In expensive head-mounted displays, the floor is usually implicitly included as a shaded polygon. We found the need to include an artificial ground plane for reference, drawn as a rectangular grid of either lines or dots."
- **Display the limits of the "vehicle" to the user.** The UVA system makes use of a waist-level hexagon to display the limited range of the tracker. The user resides in this "vehicle." "If the user wishes to view an object...within the vehicle, he may walk over to it. If the user wishes to grab an object (outside) the vehicle, he must first fly the vehicle until the desired object is within the vehicle."

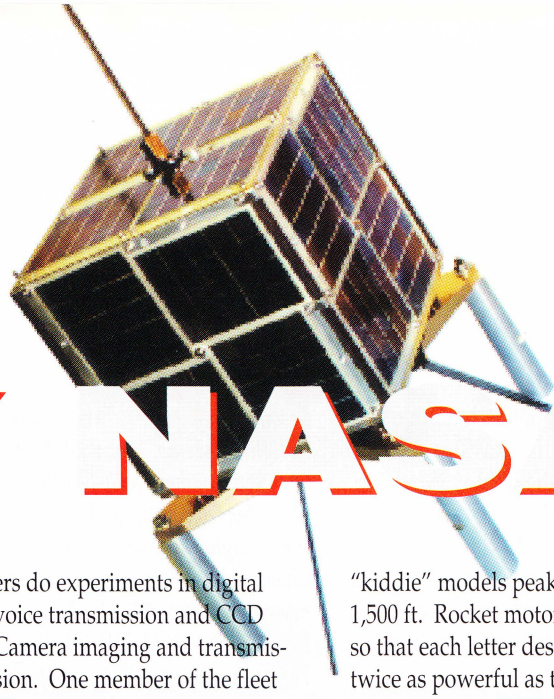
Based on the success of this first unit, Pausch and company are currently seeking funds to build ten to twenty of these low-cost 3D environments.

RESOURCES:

SIGCHI Conference Proceedings *available from* **ACM**, *11 W. 42nd St., New York, NY 10036 (212) 869-7440.*

CyberEdge Journal, *928 Greenhill Rd., Mill Valley, CA 94941, (415) 383-2458. A new bi-monthly publication that covers all aspects of 3D computing and related technologies. It contains new-product listings, feature articles, conference reports, and a decent calendar of upcoming events. Subscriptions are "professionally" priced at $87/year. Maybe you can con your local library into getting a sub.* M2





DIY NASA

Gareth Branwyn

Since the dawn of the Mercury program, all armchair space monkeys worth their slide-rule have dreamt of building their own rocketship and leaving the earth in an exhaust trail. While the expense of launch vehicles may keep this fantasy out of the hands of The People for some time to come, here are several ways to get a piece of space action *now*.

ORBIT OF THE DESKTOP SATELLITES

Since 1961, amateur radio enthusiasts worldwide have been building homemade satellites and cajoling NASA, ESA, and the Air Force into giving them a lift. These miniature satellites are the height of garage technology, often built on kitchen tabletops and pool tables using household parts and consumer electronics. The latest batch of six birds roared skyward in January of 1990 aboard an Ariane 4 rocket. Four of these "microsats" were built by members of AMSAT-NA, a national organization of radio and satellite enthusiasts. The tiny spacecraft measure nine inches on a side and weigh only 23 pounds. They make use of such scrounge-tech as carpenter's rulers for antennae, cheap XT clones for brains, and a 2-tone paint job that helps keep the Sat in a slow, constant spin (black paint on one side, white on the other produces spin from differential photon pressure). Several of these microsats act as an adjunct to the packet radio network, while others do experiments in digital voice transmission and CCD Camera imaging and transmission. One member of the fleet that was supposed to conduct various solar cell experiments is no longer talking to the ground. One feature of the two packet radio birds called Flying Mailboxes allows ham radio operators in remote locations to uplink digital messages for later downloading to other operators at worldwide locations. If desired, this mail can then be posted onto the Internet computer network.

AMSAT-NA sells several publications for the would-be Sat builder, including *The Satellite Experimenter's Handbook* ($10) and *Satellite Anthology* ($8). Membership in the organization is $30/yr.

Resource:
AMSAT-NA, P.O. Box 27, Washington, DC 20044, 301-589-6062.

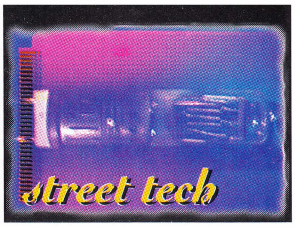
HARDCORE ROCKETRY

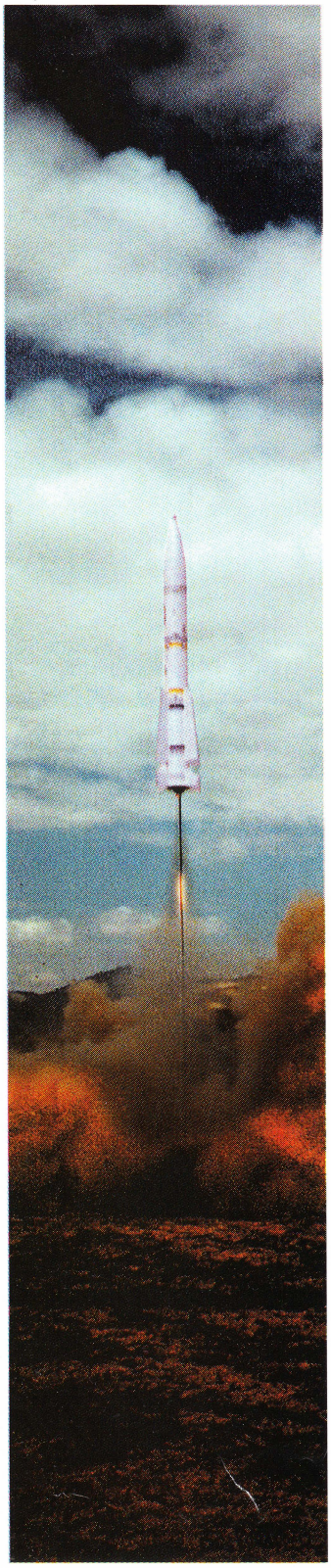
If model rocket technology keeps advancing the way it has, it may not be long before you'll be able to launch your own orbiting payloads. While many aging nerds may recall the Estes rockets of their youth, the latest high-performance birds are a different breed altogether.

There are currently three categories of model rockets: beginning *Model Rocketry* (the kind Estes still sells) uses black powder motors sized from 1/2A to D. Flights for one of these "kiddie" models peak at about 1,500 ft. Rocket motors are sized so that each letter designation is twice as powerful as the previous one, starting at 0.626 total impulse (measured in newton seconds) for the tiny 1/2As, up to 11, 600 n-secs for an N engine. For those of you not up on your thrust conversion, 4.45 newtons = 1 pound.

Advanced Model Rocketry covers engine sizes E-G. These motors are made of the same composite propellant that is used in space boosters. Here we start talking about serious aerospace materials and construction, spectacular blast-offs, and altitudes of up to a mile. These birds can carry significant payloads like multiple video cameras and onboard computers that record speed, altitude, and engine performance.

The newest category of rocketry has yet to be "officially" named, but is most often referred to as *Sport* or *High-Power Rocketry*. Models in this category use motors in the H-N range and have flight weights as high as 100 lbs. Flights for these vehicles have been logged up to 30,000 ft. and are sometimes tracked using microwave downlinking. High-Power Rocketry is relatively new and is just gaining the credibility it needs to make flying in this class possible for the average rocket hobbyist. Special permits are still required to launch them (not to mention *lots* of real estate) and the motors are very expensive. An N motor can cost as





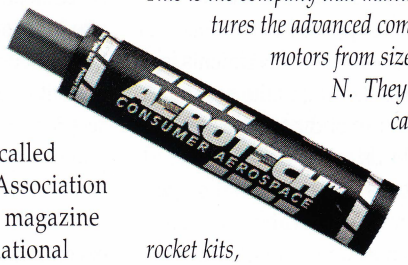
much as $1,300! Reloadable Motor Systems (RMS), a recent advance in the hobby, is cutting the power cost of composite flying in half. RMS can also be shipped via UPS ground instead of the previously cost-prohibitive method of shipping non-reloadables, which are considered Class B explosives. High-Power Rocketry has its own organization called the Tripoli Rocketry Association which publishes a fat magazine and holds local and national events. The Tripoli group has done a lot of lobbying to get "high-end" rocketry off the ground. Graduation from their Confirmation Program allows you to act as an agent of the corporation when purchasing Class B firepower.

High-Power Rocketry is wildly experimental, with bold, expensive projects and spectacular crashes. Hobbyists will stop at nothing (except basic safety) in their quest for explosive-powered fun and aero-scientific knowledge. Given NASA's current mid-life crisis, amateur rocketeers just might make it into space before the government returns.

Resources:

• ***Flight Systems, Inc.,*** *9300 East 68th St., Raytown, MO 64133. Flight Systems is an excellent and surprisingly cheap source for advanced kits and motors.*

• ***AeroTech, Inc.,*** *1955 S. Palm St., Suite 15, Las Vegas, NV 89104. This is the company that manufactures the advanced composite motors from sizes D to N. They also carry rocket kits, launch systems, and spare parts. Their parent company, Industrial Solid Propulsion, has a line of Sport Rockets and Reloadable Motor Systems.*



• ***Tripoli Rocketry Association,*** *PO Box 40475, St. Petersburg, FL 33743-0475. Membership in the Tripoli Rocketry Association is $50/yr., which entitles you to* The Tripolitan *magazine (first class), technical information, the Confirmation Program, and access to the usual silly club paraphernalia. Back issues of* The Tripolitan *are $5 each.*

SPACE TECH

NASA Tech Briefs is a monthly report of findings from NASA's far-flung research sites. Would you like to see the latest design for an adjustable laser-light sheet generator? Or, perhaps you've lost your mind and you're looking for the latest research on biologically-grown computers. It's all here! Rumor has it that Survival Research Labs has gotten some of its ideas from these pages. There are also frequent articles that may be of interest to low-end VR developers. Every street techie should sign up for a subscription. Although the articles are brief and not very deep, you can request more information, most of it for free. Subscribers also get access to NASA's Technological Utilization Network, a listing of sites and contacts for specific application problems. Subscription rates for "non-qualified subscribers" are $75/year or $125/2 years; more for overseas. You can get a free subscription if you meet their qualifications—which shouldn't be too hard if you have any kind of job in the technical or scientific fields. Write for a qualification form.

Resources:

NASA Tech Briefs, *41 East 42nd St. Suite 921, New York, NY 10017; phone: 212-490-3999*

COMPUTER UNDERGROUND TO HOLD CHRISTMAS CONVENTION

Phrack Inc. Magazine and NIA are sponsoring a Hackers Convention in Houston, Texas, December 27-29, 1991.

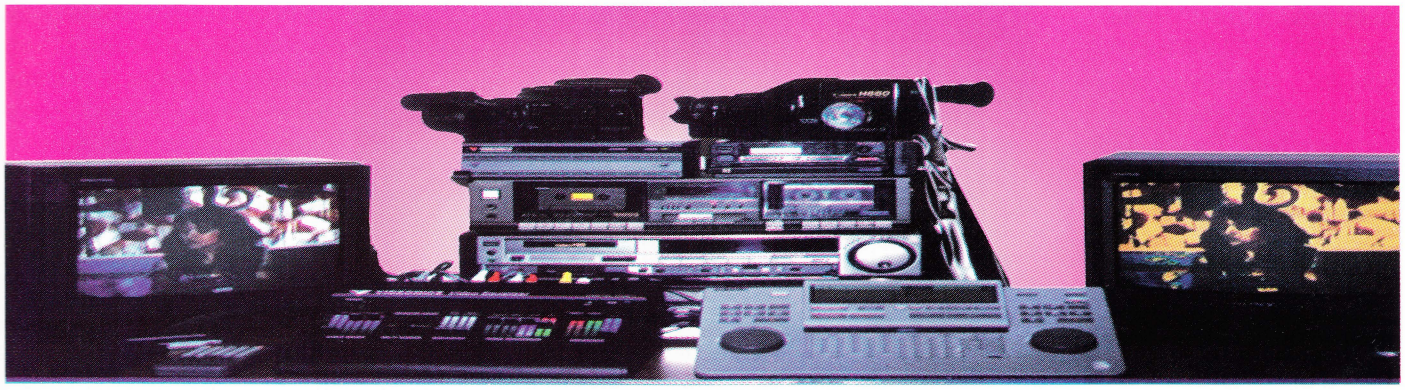
According to a note sent to R.U. Sirius on the WELL, Mondoids are encouraged to attend. Also "all hackers, journalists, security personnel and Federal Agents." Robert Anton Wilson and Ivan Stang of the Church of the SubGenius are featured speakers.

For info write to nia@nuchat.sccsi.com.



V·I·D·E·O P·R·E·S·T·I·D·I·G·I·T·A·T·I·O·N

For the Millions



Ritch Davidson

The following basic system *will give you the ability to record industrial-quality video images with Hi-Fi stereo sound, edit them into a finished production with clean edits and a few unique special effects including slo-mo, posterization and titling, and then duplicate your production onto VHS videocassettes for distribution.*

"The Basic" is the bare minimum system for doing anything interesting with video and costs about $5,000. All components were chosen for maximal balance of features, costs, size, newness, availability, and ease of use.

Allan Lundell

BASIC SYSTEM TEST FLIGHT #1

Our first test for "the Basic" came with a surprise phone call from Samantha, asking us to video her Farewell Party. Samantha, a woman with the sweet look and alluring smile of a Wisconsin farmgirl, ran a very successful god-conscious house of pleasure in the magic foothills of Marin. After years of exploring many kinds of intimate relationships she finally found *The One*. They planned to marry, move to the country and have kids. Her farewell party promised to have lots of interesting and sexy people in attendance.

This looked like the perfect event for testing the capabilities of the Basic System. My assistant and I took two Hi-8 camcorders equipped with stereo sound to the party, the **Sony V-101** and my personal camera, the **Canon H-680**. The Hi-8 camcorders were ideal for this event—small, inconspicuous, 8X zoom, low-light capability—less likely to tick anyone off.

Overall, I prefer Hi-8 format because the Hi-8 video images and sound are superb, the camcorder bodies are small and compact, and the video cassettes are about the size of an audio tape. The Hi-8s are truly excellent in-the-field image acquisition machines with a horizontal line resolution of approximately 400 (compare with regular VHS or 8mm at 330 lines horizontal resolution.)

When we arrived the party was well underway—lots of people climbing the chandeliers. Some beauteous damsels were cavorting on the deck; Mt. Tam loomed in the distance. My assistant Brett and I decided to split up, the better to canvas the action. Brett kept the Sony; I had the Canon.

Samantha was in the living room, surrounded by "beautiful people." Starting with a closeup of her face and a fast pan out to reveal the scene, we exchanged greetings.

Quickly cutting to her friends, I asked them if they had anything to say to Samantha. After recording their responses, I cut to dancers prancing to the beat of a live band. A pan to the singer, then a twisting panzoom to the guy being dunked in the hot tub on the back deck, then a house tour culminating with the bathrooms where techno-pagan revelry reached new lows.

Later Brett and I converged, to collaborate on a two-camera shoot, tracking a singer/dancer simultaneously from two different angles. This proved to be one of our greatest triumphs in the edit session.

WE WISH YOU A SONY CHRISTMAS

Opening all the boxes for the editing equipment was like Christmas via FedEx—Sony's carrier of choice. (This was all equipment that could be found at The Good Guys. Some say that as a hardcore media decentralizer I should limit my writings to Radio Shack components, since Radio Shack can be found in any metropolitan area. But Radio Shack doesn't sell Sony video stuff.) In any case, the personal video editing system I



am about to describe is assembled from commonly available components.

For monitors, we used two Sony 13" Trinitrons with remotes. These were wired to two master video decks, a **Hi-8 (EV-S900)**, and an **S-VHS (SLV-R5UC)**. Both decks were remote-controlled by **Sony's EM-300** controller/titler. These decks also came with their own sophisticated remotes, complete with jog wheels.

The EM-300 controller is a piece of hardware that can be likened to a control menu on your word processor. It has an LCD display window that shows you everything you need to know about where your system is at, and gives you the commands to choose and change. The unit's two jog wheels allow you to go forward or backward on either deck.

A primary function of the EM-300 is cut-and-paste—marking the beginning and end points of segments you wish to use and then assembling them. It can memorize up to eight video segment start- and end-points and then automatically edit and assemble the eight segments onto another tape. Sounds great, until you try it.

The EM-300 memorizes the start- and end-points without any problem. It's when the controller is auto-editing that difficulties arise, most notably towards the end of the process, when video segments six, seven and eight are being cut and spliced. Time slipping is evident, increasing in slippage by as much as seven seconds by the eighth auto-edit. Imagine cutting-and-pasting on your word processor and having the sentence you're moving be off by a paragraph or two. Not good. I want my picture processor to be as accurate as my word processor.



Ritch Davidson

We avoided this inaccuracy problem by cutting and splicing four segments or fewer at a time. Moving one segment at a time worked best. The time slippage is probably caused by the inaccuracies inherent in the mechanically linked H:M:S (Hours : Minutes : Seconds) tracking systems of the videorecorders. True electronic time code—yoking individual frames on the videotape directly with the controller—would eliminate this problem. (Sony's latest unit, the **EM-700**, has electronic time code)

So, how do we begin editing? Think of the story you want to tell. For Samantha's party, I thought it would be a good idea to introduce Samantha at her best, telling the world who she is. A one-minute segment I taped of her at the National Sexuality Symposium came to mind (her talk was called "Destigmatizing Prostitution"). This segment sets the stage for the video. We immediately know Samantha as a fun-loving and sexy intellectual. Then, since we opened with talk, we decided to segue into a musical/visual segment.

A COMIC TOUR OF A COSMIC WHOREHOUSE

We edited together several excellent sequences from the party of attractive ladies dancing, taped from several different vantage points. To heighten their beauty and give the audience the opportunity to appreciate them, we played the dancing at half speed. The music track can be added later, using the stereo PCM tracks on the Hi-8 deck for the audio dub.

Slo-mo dancing with realtime music sounds and looks great! The only problem was transferring the piece to VHS tape from Hi-8. When using special effects like slo-mo, the picture tends to break up a little at the edit points on the VHS version. This can be handled with a time base corrector, a future component of our basic edit system. *This* segment, however, transferred glitch-free.

To make some of the slo-mo visuals even more interesting, we used the posterization feature on the **Videonics Equalizer**. Posterization makes the image more cartoon-like, more illusory.

At $250, the Videonics Equalizer does a lot. Its audio mixer allows you to combine the sound from your video with music from an audio tape. A microphone input is available for narratives and voice-overs. The digital paintbrush can change the color of a few objects—or the entire screen. The enhancer can improve the video signal quality, reducing noise and increasing image sharpness.

After our slo-mo dance sequence, we moved to a fanciful house tour by Carla, one of Samantha's trusted confidantes. There were some great comedic moments here. So, in editing, our focus was very much on the soundtrack, as *well* as the visuals. Brett and I painstakingly did one edit at a time, playing back the tape after each edit, making sure that the soundtrack and the jokes were intact.

So far so good! Now we had Samantha's intro, slo-mo dancing with provocative ladies, a comic tour of a cosmic whorehouse... now what? We decided to feature one of the party performers, Mark, a singer/dancer. Since Brett and I had both shot one of his routines, this was an opportunity to experiment with two-camera synchronized shoots—something generally associated with more expensive equipment.

The final two-camera edit



looked pretty good, with only a very small amount of picture breakup as we switched between the two cameras.

Next, we had a long video sequence of Samantha opening up all kinds of goodbye presents. Fun in real life, but kind of boring to watch on video—at least in normal time. The Sony gear had 2X speed settings, so we tried that. It looked great! Brett audio dubbed Al Dimeola's fast-paced "Fantasia Suite for Two Guitars" to the 2X normal speed visuals.

We now had slo-mo, regular, and high-speed visuals in our custom video. We finished with Samantha's friends delivering their personal messages directly into the camera. This was the easiest to do, using the EM-300 cut-and-paste editing capability.

For the credits, we tried two types of titling effects. We focused the camcorder on the Mac screen and scrolled the screen-display of titles—an obvious and low-tech solution. Ah—but I could also frame-grab fonts from the Mac screen with the built-in frame grabbers in the H-680, the V-101, and the EM-300! All three machines allowed manipulation of text — both color and scrolling.

This time out, we used the titling capabilities of the **Videonics DirectEd** box, another Videonics personal video editing product. The DirectEd is actually a computer, with many layers of menus defining arcane capabilities yet to be explored.

From what I understand, the unit, especially when combined with its companion product, **ProEd**, can perform and remember all assembled edits on feature-film length videos. This means the machine can remember thousands of start and endpoints of video segments on a source tape and reassemble them onto your finished master tape in the order you specify. We will be testing the system to see how accurately it performs this task.

The DirectEd instructions are more complex than the **Sony RME-300**, and the Direct Ed system requires that you think through the script of your video *before* you start editing.

The Videonics titling differs from the frame grabber in that it allows you to choose from a variety of computer graphic backgrounds—a starry sky, a rainbow border, a witch on a broomstick—even a birthday cake! A choice of several color-changeable fonts made the titles as much fun as the rest.

For editing, we preferred free-form in realtime. For this, the RME-300 was preferable over the DirectEd.

The Basic System Equipment List:

SONY	
V-101 Hi-8 Camcorder w/remote	$ 1200.00
EV-S900 Hi-8 VCR w/remote	$ 1600.00
SLV-R5UC S-VHS VCR w/remote	$ 1000.00
EM-300 controller/titler	$ 750.00
2 13" color monitors w/remote	$ 700.00
CANON	
H-680 Hi-8 stereo camcorder w/remote	$ 1200.00
VIDEONICS	
Video Equalizer	$ 250.00
DirectEd System w/remote	$ 600.00
Basic A/V System	
AM/FM Stereo tuner/amplifier w/speakers	$ 500.00
Audio cassette recorder	$ 100.00
Basic System Total Cost	**$ 7900.00**

You could get by with only one camcorder, your existing stereo system, and your own monitors, reducing the outlay to under $5,000.

THE WRAP-UP

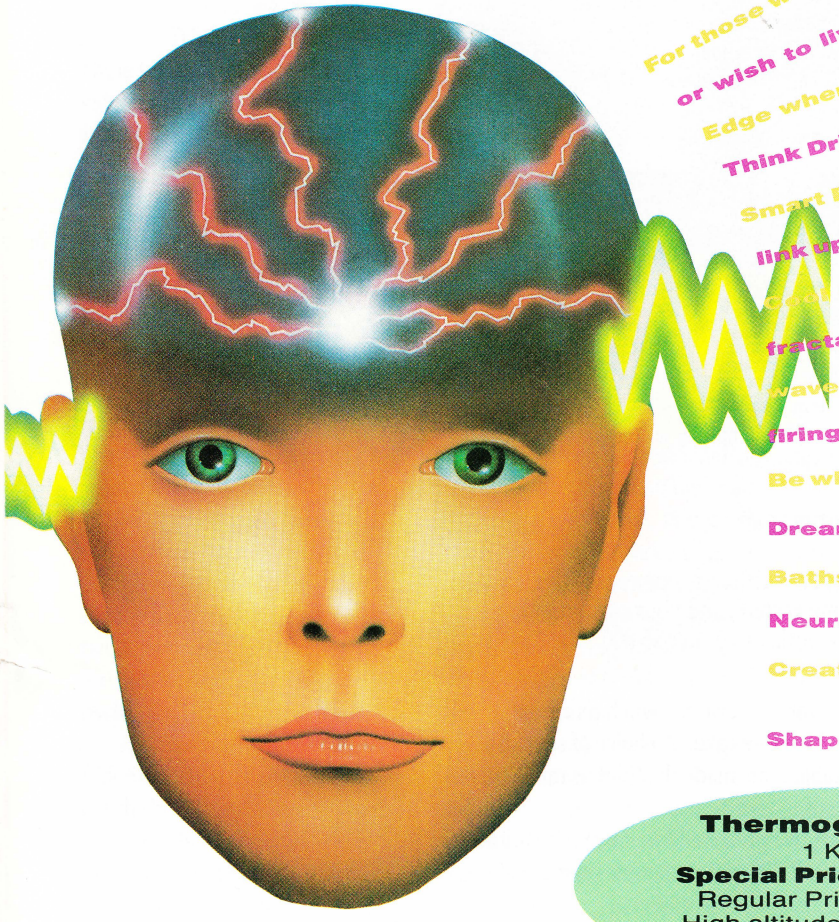
The Hi-8 camcorders, the Sony V-101 and the Canon H-680, were excellent in-the-field image acquisition machines. Overall, Canon seems to be more rugged, designed for a camera user, while Sony is stronger in combination with newer, higher tech. It's like the difference between a Volvo and a Honda.

Consumer video editing equipment is quite easy to use and the results will improve when electronic time code is implemented. There is also still some problem with image degradation and loss of synch signal in the copying process. The Sony equipment and the Videonics Video Equalizer lend themselves well to spontaneous editing. As you can tell, we are fast approaching broadcast quality TV at the desktop level—but we ain't there yet.

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"Pricey salad... (Who's funding this thing?)"
—The Voice Literary Supplement

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Say the Secret Argot



Photo: Heide Foley

"Pricey salad...

(Who's funding this thing?)"

—The Voice Literary Supplement

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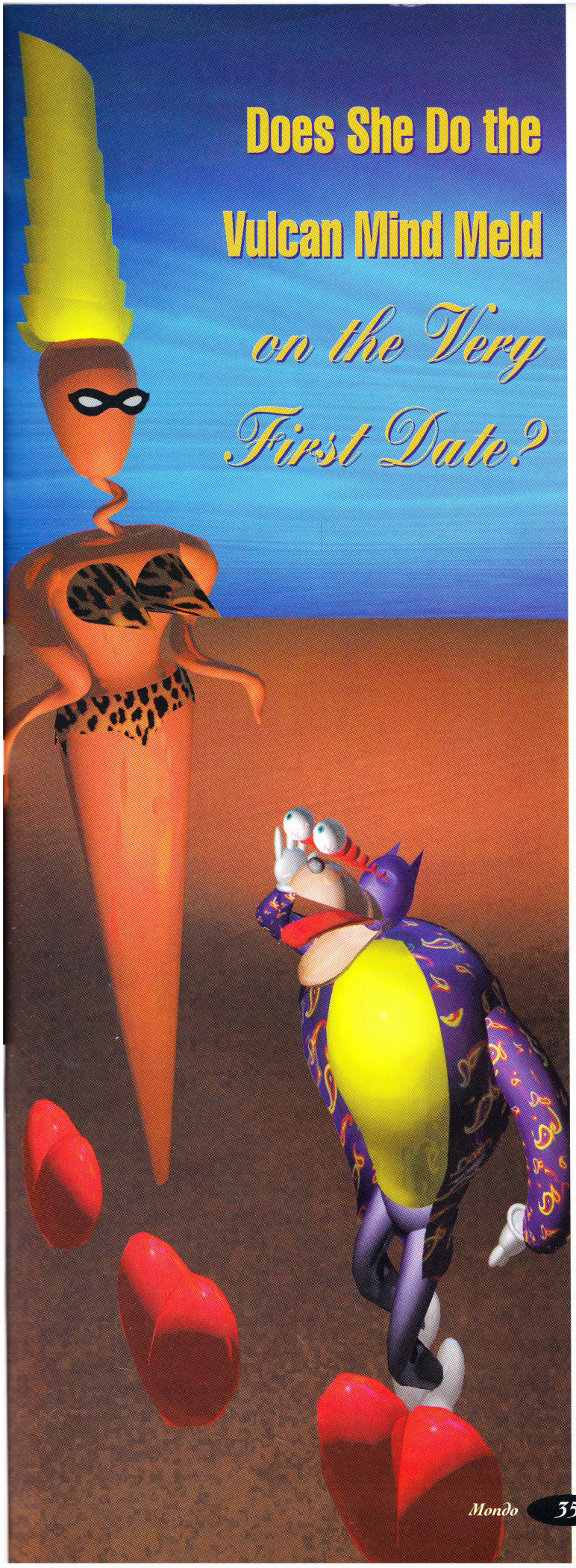
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Does She Do the Vulcan Mind Meld on the Very First Date?



Nick Herbert

A Fringe Science Special Report

St. Jude calls me to ask for a really sexy Fringe Science column. What do I know about sex…? I call up my local muse and she invites me to her place for dinner. She serves us a Middle-Eastern meal: eggplant kuku, tabouli salad, yogurt and Israeli wine. After doing the dishes, we settle down on cushions next to the hubble-bubble for dessert. When the moment seems ripe, I pop the big question: "What do women really want?" "That's not the point," she replies, "The question is, Nick, what do you *really want?"*

I relax, open up my chakras and am suddenly overwhelmed by a powerful transmission on a familiar yet speechless channel. When I recover my ordinary senses, I try to put the experience into words. I call it: "Does she do the Vulcan mind meld on the first date?" and it roughly translates like this:

I want your bra size, baby,
Fax number, E-mail address,
Modem com code, ID,
Phone machine access.

Give me your thumb print, password,
Blood type and credit check;
Give me your antibody spectrum,
Your immune response spec.

Let's break bread together, baby,
Exchange cryptographic primes;
Let's link up our parallel ports;
And go on-line in real-time.

Let's indulge in covalent bondage;
Let's communicate in C.
Let's merge our energy bodies
And bob in the quantum sea.

I wanna swim in your gene pool, mama;
Snort your pheromones up close range;
Tune in your neurotransmitters,
Introduce you to Doctor Strange.

I wanna surf your quantum potentia;
Mess with your thermostat;
Wanna tour your molecular orbits;
Wanna feed your Schrödinger cat.

Let's surgically merge our organs:
Our kidneys, our lungs, and our hearts;
Let's read physics journals together
And laugh at the dirty parts.

Let's Bell-connect our bellies
With some quantum-adhesive glue;
Let's do new stuff to each other
That Newton never knew.

I wanna feel your viscosity, honey,
Melt my rheological mind;
Let your female force-field vortex
Deform my male spacetime.

M-2

Mark Landman



Smart Drugs Update

John Morgenthaler

LUST, FOR LIFE

Take a good look at Deprenyl. Used to treat Parkinson's for twenty years in Europe with negligible side effects, Deprenyl (or Eldepryl or selegiline hydrochloride) extends *maximum* life span in animals to the equivalent of 140 human years. As if that weren't enough, Deprenyl increases libido in humans and is a powerful and non-toxic antidepressant. A new study suggests that it's also a smart drug useful in the treatment of Alzheimer's disease (James K. Cooper, M.D., "Drug Treatment of Alzheimer's Disease," *Archives of Internal Medicine*, Volume 151, 1991, pp. 245-249).

Normal, healthy people are taking a quarter of a 5 mg tablet per day or one 5 mg tablet twice a week. Deprenyl is available in the U.S. with a prescription, or by mail from Interlab in England or In Home Health Services in Switzerland.

YOUR URINE TEST IS CLEAN! YOU'RE FIRED!

Some new angles in the smart drug story have recently appeared in the media. Will air traffic controllers be *required* to take smart drugs? Will smart drug urine tests be required for students taking SAT's and other exams? Are the poor put at a disadvantage, being unable to afford smart drugs? Are the Japanese and Europeans ahead of us in using smart drugs—and leaving us in their metabolic dust?

In spite of the new angles, though, mainstream media cleave to the same old party line. 50's style Skinnerian psychologists at obscure So-Cal campuses dunk Norway rats in tanks of water. As they flounder about, they intone the party line about placebo effects—completely ignoring 20 years of clinical use on *human* patients in Europe!

The BBC recently aired a one-hour show in Great Britain and Western Europe called "Food For Thought" on its weekly science show, *Horizon*. Directed and produced by Kevin Hull, the show examines many aspects of the smart drug scene in a balanced and scientific way. Look for *Nova* to air the show in the U.S. on your local PBS station.

WHAT ARE THOSE RECEPTORS DOING IN THERE?

Piracetam has been in use in Europe for twenty years, yet its mode of action is only now being unraveled. Recent research indicates that piracetam (and all the piracetam-like noötropic drugs) may interact with aldosterone receptor sites in the brain. Aldosterone is an adrenal hormone known to regulate sodium balance, but it's unclear why there are aldosterone receptor sites in the brain. No other smart drug has been found to have a mode of action relating to this hormone, so this could be very important data. (Cesare Mondadori, *Peripheral Signaling Of The Brain: Role in Neural-Immune Interactions And Learning and Memory*. Hogrefe & Huber Publishers, Toronto, 1991).

WHOLE BRAIN ACCESS

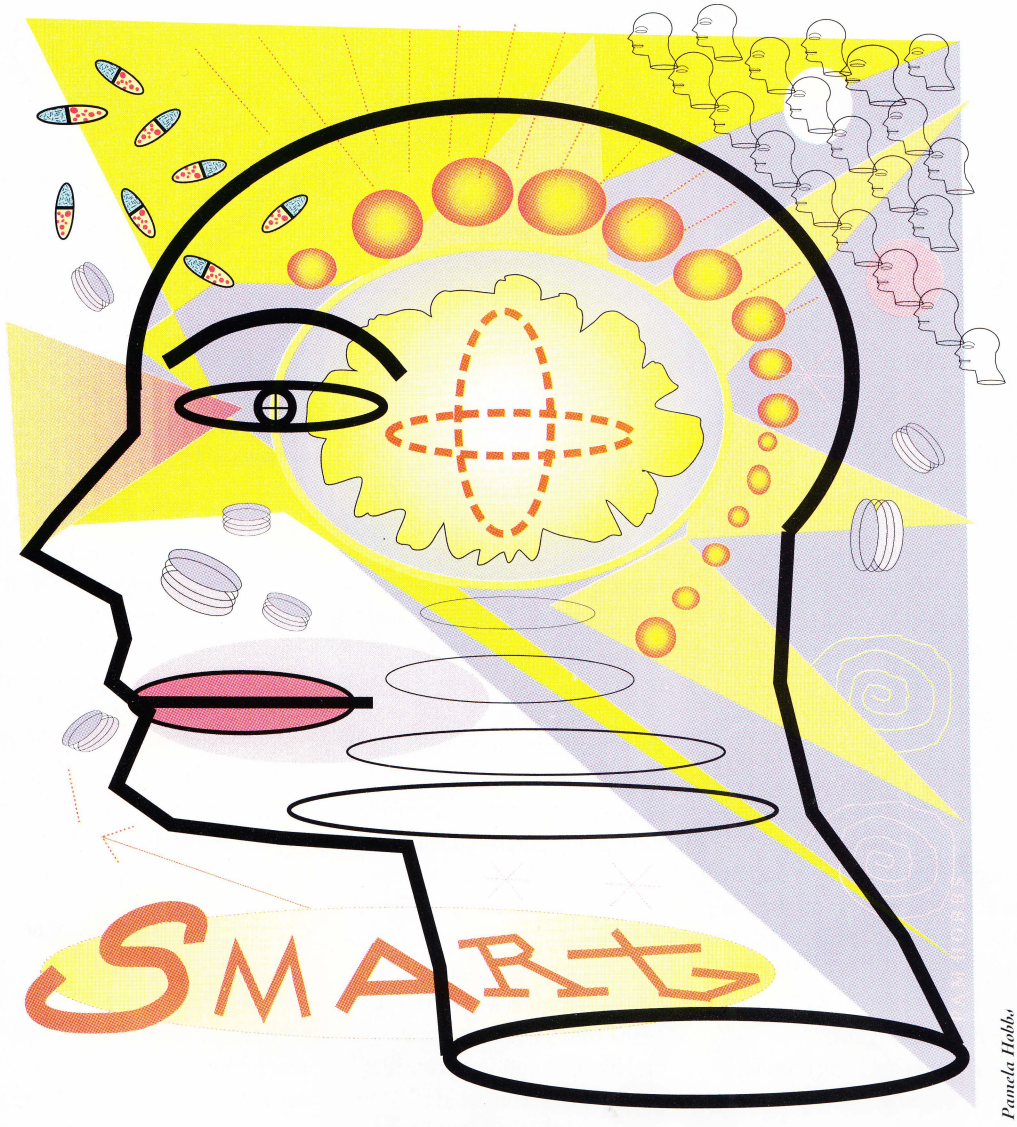
A new San Francisco retail store is specializing in over-the-counter mind nutrients. Their stock runs the gamut from amino acids to books and journal reprints. Call Smart Products at 510-989-2500 or 800-989-2500.

Send a self-addressed stamped envelope to B & J Publications at the address below to request our growing list of physicians working in the smart drugs field. Physicians, we want to add you to our list! Please include a brief description of your practice. We especially hope to hear from more physicians prescribing smart drugs to people in the earliest stages of Alzheimer's disease.

We were not surprised to find a group protesting the FDA on behalf of people with Alzheimer's, demanding access to the controversial smart drug **tacrine**. Like AIDS activists before them, the group is noisily making trouble for the bureaucrats while insisting that people should have some say about the health care they receive.

TELL US A STORY...

A *MONDO* reader wrote to us after our first smart drugs article appeared. He said that smart drugs didn't work. This gentleman had ordered everything we covered in the article, eaten a



Pamela Hobbs

HANDFUL or so of each of them all at the same time and felt sick, not smart. Please note that most smart drugs and nutrients have an inverted U-shaped dose response curve; too little is too little, and too much is too much. In our experience, combining smart drugs reduces the optimum doses needed as they seem to synergize each other.

We would like to receive more anecdotal smart drug and nutrient stories. We've been hearing some remarkable things about vincamine (Oxicebral) taken with other smart drugs in low dose combinations. One woman, a commercial artist, stayed up all night drawing fifty portraits (oh, those deadlines!) after taking one 20 mg vincamine capsule, 400 mg of piracetam, a 50 mg Ginkgo biloba capsule and a little DMAE bitartrate. As soon as she finished, the woman went to sleep for three hours, then got up to deliver the art-work to her client right on time with a smile.

While these stories are not proof of anything in the scientific sense, they are suggestive. *Smart Drugs & Nutrients* is apparently being read by many drug researchers. Your experiences could provide a starting point for researchers designing new experiments. If we include your anecdote in our Testimonials & Case Histories Appendix, we'll send you a Smart Drugs & Nutrients T-shirt.

RESOURCES

WRN, a Canadian mail-order drug source listed in *Smart Drugs & Nutrients*, has apparently gone out of business. The two other mail-order drug sources listed, InHome Health Services and Interlab, keep improving their service, selection, and pricing. New additions to their price-lists include oxiracetam, DHEA, Fipexide, and Vinpocetine. Note the new address for Interlab. Please write to us with news of more mail-order smart drug sources.

INHOME HEALTH
SERVICES
P.O. Box 3112
CH-2800 Delemont
Switzerland

INTERLAB
BCM Box 5890
London, WC1N 3XX
England

John Morgenthaler is co-author, with Ward Dean, M.D., of Smart Drugs & Nutrients, *available at WaldenBooks, B. Dalton or from B & J Publications, P.O. Box 483-13, Santa Cruz, CA 95061, $12.95 + $3 shipping and handling, California residents add $.94 tax; Overseas $12.95 + $8 airmail shipping and handling, send money order in U.S. dollars only.* M2



Are You as Smart as Your Drugs?

Oh, yeah —and three hydergines for cerebral blood shunting and bushier dendrites

a paranoid rant by St. Jude

Word! Street sez, the FDA is worried about smart drugs. They do want to regulate things, of course—that's in their nature, y'understand. And if the FDA and their henchpersons want to go strangling off your connects, they're doing this for your own good. They just want to keep you from being stupid about getting smarter.

The fact is, we're talking about drug abuse here, babies. We're talking about *addiction*. Let's just face it—nobody with any chemically evolved intelligence is going to be exactly chuffed about, sinking back into the primordial ooze, brain-wise. And, as you push on through your decades, senility is coming to kiss you. There is no stopping. The awful truth is that *smart drugs are forever*.

You've gotta look at it from the POV of the FDA:

Are you bobbling around, drooling and scratching, waiting for your shipments from—no, no, not Mendocino, not Medellin—Switzerland and England? Now that the bottles are empty, can you feel the hole left by every single IQ point? It's time to own up to it, baby: *you've got a habit*. Another case of smart-drug dependency.

It started so innocently: just a snort of vasopressin before sex, or before getting down with your keyboard. Then you discovered that 800 mg of piracetam helped you remember obscure Japanese technical terms—*kyogen!* that's the word!—never noticing how all-out *unnatural* it is to recall stuff like *kyogen*. There are some data that nerds *are not meant* to pluck from deep storage archives.

Then you started jonesing when you missed your dose. It was subtle at first: somehow you just didn't feel ON today. And what *was* that money called in Morocco? But you felt so ON IT when you took 2 of the 400 mg tabs that you started taking four... or six...

It made sense, then, to go for the synergistic effect. You started doing up the cerebral blood vessel dilators—a 20 mg vincamine and three 20 mg gingko bilobas to increase the blood flow to your brain, and 700 mg of DMAE and a swig of choline to erg your acetylcholine along, so to speak, to lay down your memory tracks. Oh, yeah—and 3 hydergines for cerebral blood shunting *and* bushier dendrites. So you could back off on your piracetam: *okay*, back to two a day. *Damn*, a piracetam habit can cost you.

There was never any turning back. Feel just once the thrill of hanging out in the shut-down Chiba peripheries of your intellect, and you're hooked.

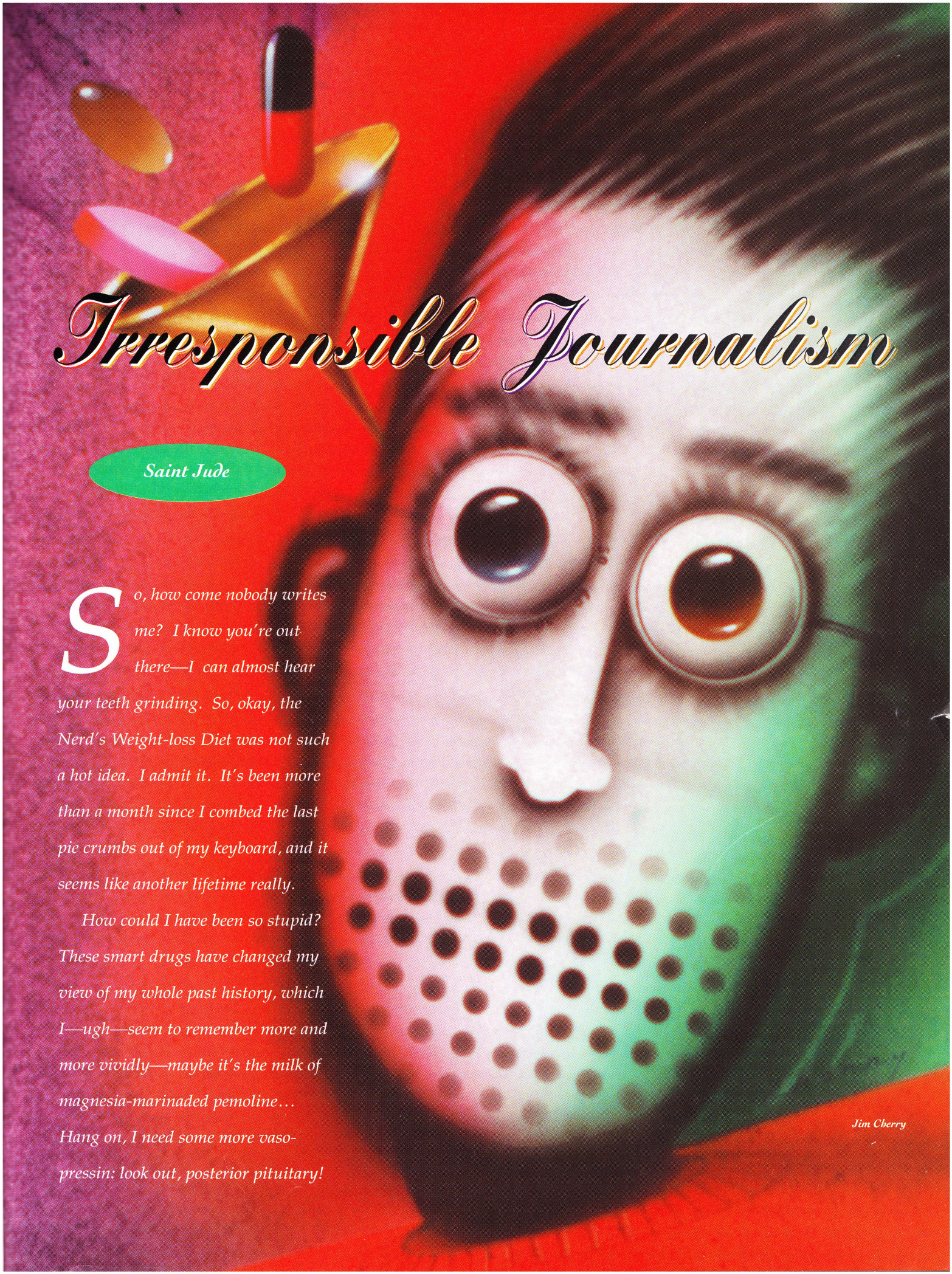
And then you're there in the biz—building your connects, ordering drugs from different international smart-drug purveyors to get the best deal, ordering in advance to be assured of your supply...

But now you're strung out, spinal tendrils twitching like beached jellyfish, browned-out brain itching like a phantom limb, ears tuned to the UPS truck that is always late. *The first thing that you learn is you always gotta wait...*

The FDA would like to save me from this sort of inglorious dependency. I appreciate their concern, but nonetheless, I will give up my vasopressin only when they pry the squeezebottle from my cold blue fingers.

> *When they knock down your front door/ How ya gonna come?*
> *With your hands on your head,*
> */or on the trigger of your gun?*
>
> *—The Clash, "Guns of Brixton"*

Well, me, I'd rather face whoever down-knocked my front door with my hands on my *mouse*, on line with the pioneering self-experimenters and anti-control lobbyists who share my paranoia about just such a possibility. If a couple of letter-writing anti-abortion nuts could pull off a worldwide stymie of RU-486—a drug with documented anti-cancer, anti-AIDS, anti-obesity *and* longevity potential—what acts of a liberatory nature might be achieved by a shitload of zoids blazin' on smart drugs? It boggles the chemically-enhanced mind... M2



Irresponsible Journalism

Saint Jude

So, how come nobody writes me? I know you're out there—I can almost hear your teeth grinding. So, okay, the Nerd's Weight-loss Diet was not such a hot idea. I admit it. It's been more than a month since I combed the last pie crumbs out of my keyboard, and it seems like another lifetime really.

How could I have been so stupid? These smart drugs have changed my view of my whole past history, which I—ugh—seem to remember more and more vividly—maybe it's the milk of magnesia-marinaded pemoline… Hang on, I need some more vaso-pressin: look out, posterior pituitary!

Jim Cherry



Ah, yas yaasss—but now I have a much better idea for making your personal trains run on time, friends. It's almost certainly nonlethal, and documented to be risk free! *Nearly natural! No hangovers! It's called:*

The Smart Nerd's Smart Drug Regimen

Rise and shine! You've slept a full eight hours! Too bad you're free-running again on the circadians—3 AM can be a demoralizing time to wake up. Never mind, they are *your* circadians, and all your anarchist friends will die to defend your right to do with them as you will.

Okay—just roll over and hit the DMAE. Since you've been taking DMAE, you may notice you wake up easier. Or maybe not. Sit up, hear? Two 350 mg tabs should do it, whatever *it* may be—likely your muscle tone has gotten tonier in the last month, mm? And perhaps you're a trifle more… *tensile* during the day? More *on it*, perchance? Heh, heh. Pop a B-5 to synergize, to max your cholinergic hit. They give this to hyperactive kids, and you know what *that* means…

As you rootle around for your socks, don't even think about pre-morning coffee: have some fruit juice. It is the dark night of the soul, coffee-wise. Caffeine decreases your ability to cope with conflicting peripheral—oho, Perry Farrell! Now I get it!—peripheral incoming stimuli. Maybe it has something to do with the corpus callosum, which if you're a guy is all strangled down anyway. Open up that corpus callosum! Take some piracetam now! 800 mg is about right, if you synergize it with your customary mix—above 1600 you start to sob when you hear *Brown-eyed Girl* in elevators.

Don't Bother Asking Mr. Science

Piracetam may be the real thing. Let's face it. None of these drugs is anything but a shotgun blast in the dark, but until the molecular biologists get their systems thinking together for real, and map out precisely how to hit which neurotransmitter and what that means… we'll take what we can get. With fruit juice. *Down the hatch!*

Lysdexics may be able to read and write more efficiently

Piracetam is the *pumpkin* of smart drugs. Actual clinical tests have been done on real humans—albeit with very bloody few humans (always check that "N=" part, where N=Number of Subjects)—which suggest that learning and memory are enhanced, as they say, with 3 or 4 grams of piracetam a day. Lysdexics may be able to read and write more efficiently. It may be worth the money, even with the sobbing in public musical situations.

More Tacky Tech Analogies

And if it really does open up your corpus callosum… all right, wait—the corpus callosum is the huge SCSI that straps together the two hemispheres of your brain. If the separate compartments of your brain communicate openly and honestly with one another, creativity might ensue. Memory tracks might be laid down, retrieved… stuff like that. This is still intermediate technology time, remember. Someday, if scientists pay very close attention to what they're doing, and take enough piracetam, we'll understand.

Now, to help along your piracetam take 3 or 4 gingko

EEEEEEaaaaaaahhhh! These placebos sure do hit with a rush. Don't worry. After the first hour or so you'll be a productive citizen

biloba tabs, which will increase blood flow to your brain, and also incidentally to your skin, always a good thing. Vincamine has the same effect, and may help otherwise—what the hell, take 20 mg of that too. Why not?

HAIRY DENDRITES, BATMAN!

More pills! Hydergine is a member of the ergot family, generally a fun bunch. Albert Hofmann, the man who gave us LSD, is responsible for hydergine. He takes three or four of them daily, just on the off-chance they might be useful, according to a personal communication. Unfortunately, this communication was not with *me* personally, as I would personally like to kiss his bony Swiss kneecaps in memory of happy times…

Ah… hydergine is interesting because it seems to reverse nervous system entropy. Ordinarily your neurons just pop like overstressed condoms, until you die. Hydergine makes your dendrites—the little end-bristles on your neurons—more profuse, and bushier. This means they may reach out and touch neurons they couldn't get at before. Again, as with the corpus crispy, it appears that enriched connectivity amps up the read-and-write functions. And intellectual synergisms. Take five or six of these little guys.

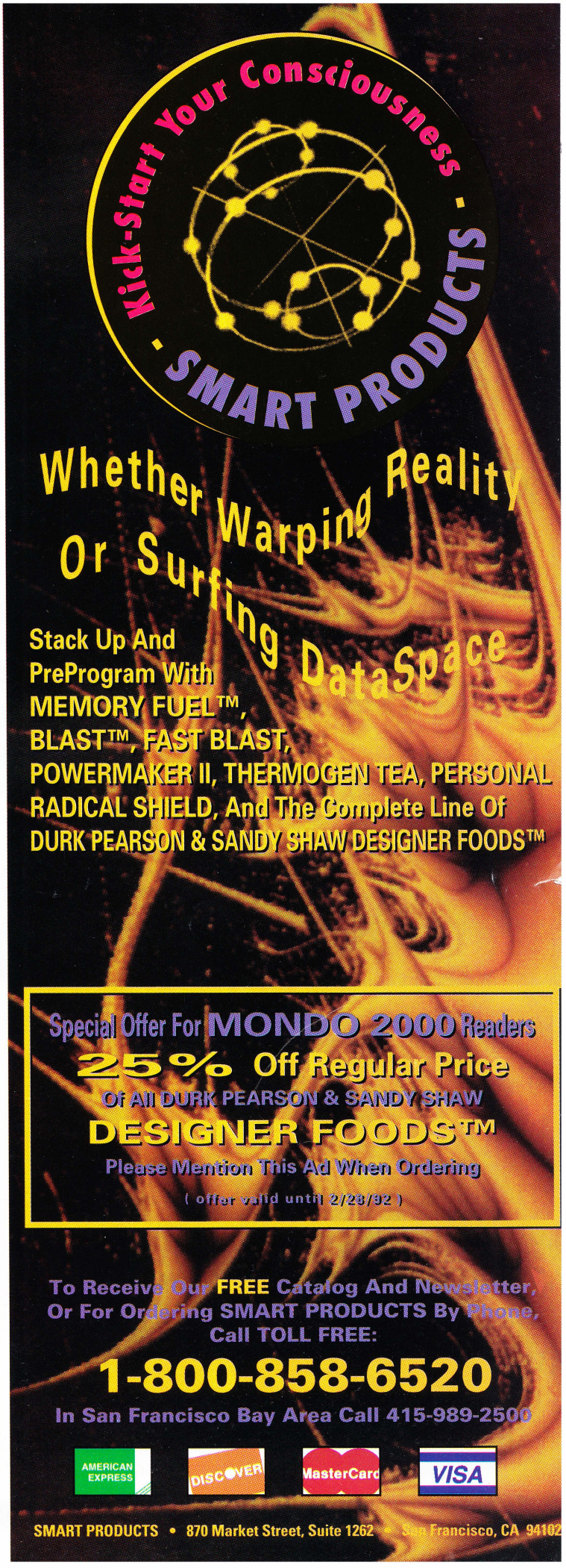
YES, I WRITE THE SNOTTY SUBHEADS, TOO

It's *really dark* at 3 AM. Fire up the computer for company. Too bad your lover left you because of the pumpkin pie/ephedrine-induced paranoia. He or she should have toughed it out until your vasopressin run. You see, it turns out that vasopressin not only helps you lay down memory tracks, it also—like its sister, oxytocin—hits the smooth muscle of the reproductive tract. It improves the speed and intensity of all muscle response. Mega stimulation. *Major* orgasms. Do a blast up each nostril.

EEEEEEaaaaaahhhh. These placebos *sure* do hit with a rush. Don't worry. This won't last. After the first hour or so you'll be a productive citizen.

Although, eventually… *much* later… 'round about crepuscule, Nelly… you may feel a trifle… sluggish… M:2

Next: Drop 'em till you POP! New stimulants!





Guerrilla Semiotics:

SEX MACHINE, MACHINE SEX: MECHANO-EROTICISM & ROBO-COPULATION

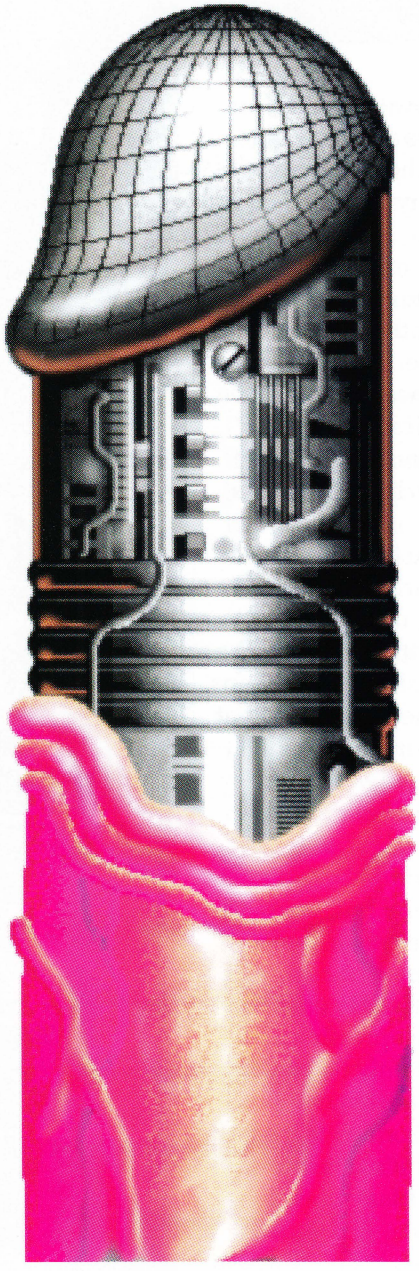
"I feel,"

sang James Brown,

"like being a

sex machine."

Mark Dery



Mike Saenz

The soul singer envisioned himself a plug-in stud, tireless as a punch press but still salty with sweat, soft to the touch; the emphasis, in "Get Up (I Feel Like Being a) Sex Machine," is on sex, not machinery.

Increasingly, however, the mass mind muddles sexy machines and machine sex, conflating them into the conundrum Marshall McLuhan suggested was "born of a hungry curiosity to explore and enlarge the domain of sex by mechanical technique, on one hand and, on the other, to *possess* machines in a sexually gratifying way." This mechano-eroticism is evinced by *The Party Machine*, a TV discotheque in which mini-skirted, midriffed models gyrate suggestively in front of giant cogwheels and pistons, and by videos for songs by Janet Jackson and C+C Music Factory incorporating Machine Age scenery that suggests a cross between Studio 54 and Vladimir Tatlin's *Monument to the Third International*.

Even as machinery is eroticized, sexuality is mechanized. The "metamorphosis of man into a dynamo, the beauty of women considered as sparkplugs, cogs and pistons" augured by a 1919 Dada manifesto has become commonplace. Pop singers and Hollywood stars, with the aid of aerobic workouts and plastic surgery, chisel themselves into Futurist sculptures, all sharp edges and flat planes. Ads for Evian bottled water depict the postmodern ideal, glistening Aryans whose streamlined physiques look as if they were lathed and polished on some Nordic assembly line. It seems only appropriate that the cultural icon for the nineties should turn out to be Arnold Schwarzenegger, an affectless automaton whose acting ability falls just short of Disneyland's Mr. Lincoln, an Audio-Animatronic dummy



brought to life by bursts of pressurized air.

Schwarzenegger, a hunky *Menschmachine* best known for his portrayal of a death-dealing cyborg, epitomizes sexual confusion in the technotronic age. When he confesses, in the BBC's five-part teardown of Tinseltown, *Naked Hollywood*, that "Pumping iron is just like having sex," he speaks for many. "Can you believe how much I am in heaven?," he effuses. "I am, like, *coming* day and night." His experience is hardly unique. Few who have sat in a state-of-the-art health club, surrounded by mirrors and straddling a gleaming Cybex apparatus, its moving parts slick with lubricant, would deny that the overall impression is one of automated intercourse. It is *Philosophy in the Nautilus Room*—the Marquis de Sade meets Jack LaLanne.

Stuart Ewen improvises brilliantly on these themes in *Consuming Images: The Politics of Style in Contemporary Culture*. "This machine-man is one of a generation of desolate, finely tuned loners who have cropped up as icons of American style. Their bodies, often lightly oiled to accentuate definition, reveal their inner mechanisms like costly, open-faced watches."

Technocultural sexuality is cyborgian, a marriage of meat and mechanism. As Enzo Ferrari put it, "Between man and machine there exists a perfect equation: fifty percent man and fifty percent machine." Stephen Bayley anatomized the equation in *Sex, Drink & Fast Cars* : "the idea of mechanical intercourse...lies only a little beneath the surface of people who are fascinated by fast cars." It celebrates what the French art historian Marcel Jean called "the sexual frenzy of factories," the psychosexual symbolism of hydraulic fluids squealing through small orifices under high pressure, of camshafts thrusting ceaselessly. It follows, naturally, that technofetishism in the bedroom should lead to a culturally-pervasive desire to couple with machinery. The only thing better than making love *like* a machine, it seems, is making love *with* a machine.

In recent years, the subrational appetites of the collective unconscious have given rise to a vast proliferation of mechano-erotic imagery. Examples abound: the sexy replicant who beds Rick Deckard, the hard-boiled protagonist of the movie *Blade Runner*; the mechanoid whore with the "polyethylene cunt" and "waterproof synthetic skin" in K.W. Jeter's cyberpunk novel, *Dr. Adder*; the robot odalisques of Japanese cartoonist Hajime Sorayama—their chromium pudenda free of hair, holes, and other female unpleasantries; and the servo-controlled android geisha invented by Japanese roboticist Shunichi Mizuno, who believes that eroticizing the machine "will be essential for the coexistence of man and machine in the future."

Mizuno's words may prove prophetic if cultural momentum propels events on their present course. Man-machine miscegenation—robo-copulation, by any other name—may seem a seductive alternative to the vile body, locus of a postmodern power struggle involving AIDS, abortion rights, fetal tissue, genetic engineering, and nanotechnology.

Robocop II, a hollow movie with a heart of brass and a head full of clocksprings, nonetheless contains one wholly unique scene, a brief vignette that offers a profoundly disturbing vision of things to come. In it, Angie, the girlfriend of the deceased drug lord Cain, finds herself face-to-face with the hulking, hawkish robot in which her lover's consciousness now resides. A computer-generated simulacrum of Cain's leering face, lips pulled back in a vulpine grin, peers down at the mortified woman from a video screen mounted in the automaton's head. Purring salaciously, he extends a pair of snapping, sawtoothed pincers; for a second, they are angled in such a way that they bear an unmistakable resemblance to an erect male organ—a *phallus dentatus* of sorts. Moaning, Angie runs a taloned finger along the mechanical protuberance's cold hardness, her glossy lips slightly parted. "It'll take some getting used to," she decides at last, "but it'll be *great*."

Man-machine miscegenation may seem a seductive alternative to the vile body

Mark Dery is a cultural critic whose writings appear regularly in The New York Times, Rolling Stone, New York, The Chicago Tribune, *and* The Philadelphia Inquirer. *Recently, he was interviewed on the subject of "cultural jamming," a species of media monkeywrenching, for the German television program* Kultur Report. *He is currently at work on* Cyberculture: Road Warriors, Console Cowboys, and the Silicon Underground, *an inquiry into the sociocultural fallout of the cybernetic explosion. For* MONDO *he is tilling the field of* "Guerrilla Semiotics."

VIRTUAL



It is precisely when it appears most truthful that the image is most diabolical.

—Jean Baudrillard

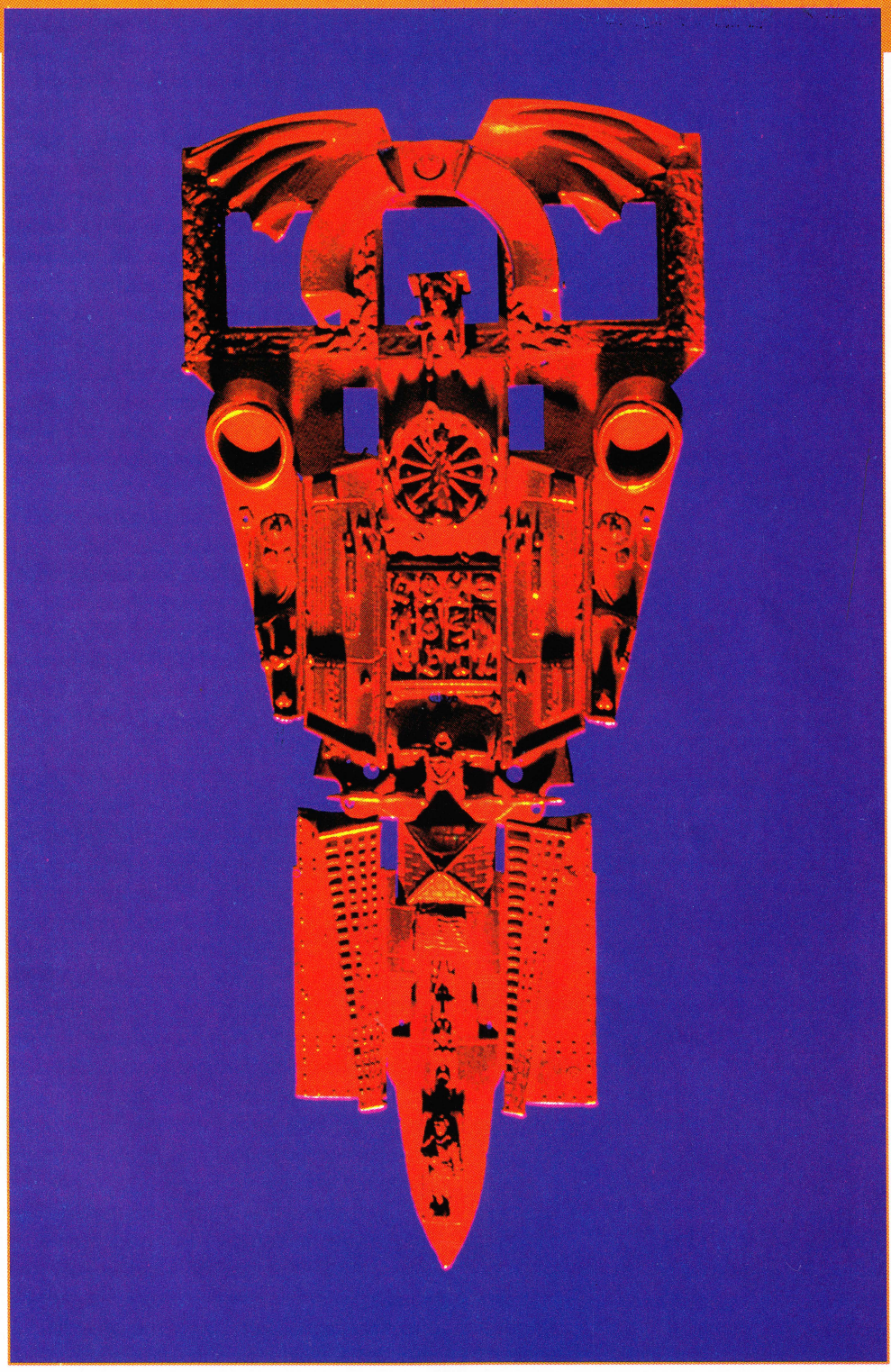
John Perry Barlow

ike most Americans last February, I was hooked on the new CNN sports series *War in the Gulf*. It didn't sound strange to me when a friend said he didn't know whether he wanted to watch the War or the Lakers game that evening. They were fairly indistinguishable. Both commentated by fatuous men well removed from the action. Indeed, in the case of the War, one wondered if there even *was* any action. The closest one got to that was the occasional footage of people scurrying around in the darkness following a Scud warning, followed by an blurry flash of distant fireworks as the Patriot took out the Scud.

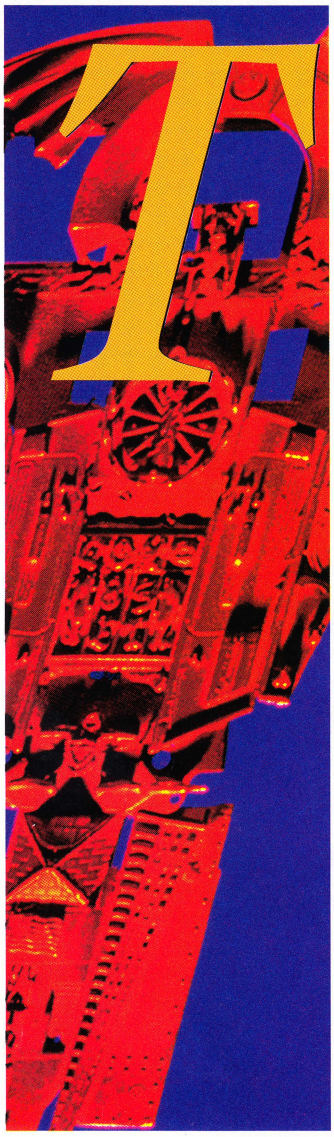
Which was, in a way, a perfect metaphor for the abstraction and bloodlessness of this new form of combat. A missile would emerge without any tangible point of origin, its senders anonymous and devoid of human characteristics. A machine would detect it, another would plot its trajectory, and a third would rush out to kill it. It was like an academic argument. Flesh and bone were miles away from anything that might rend them.

Finally, after weeks of this shadow-boxing, it was determined that the map of Kuwait had been sufficiently revised that it was now safe to send in live Americans. Personally, I still had such fear of the Republican Guard that I thought we should soften them some more. What I thought we faced was an army as large as ours, toughened by almost a decade of the nastiest combat since World War I, comprised of Muslim fanatics, each convinced that death in battle was just a quicker trip to Paradise. Certainly more than a match for a bunch of rag-tag American kids who'd joined the military because they couldn't get a job at the 7-11.

NINTENDO



bronze sculpture Joel Peril



hen we saw them for the first time. Trying to surrender to the Italian television crew through whose cameras they were beamed to us, they looked hapless and confused. They were devastated refugees from the real world, trying desperately to enter the sanctuary of the Screen, a sanctuary we had enjoyed throughout this affair whether in an armchair in Terre Haute or at the bombardier's workstation in a B-52.

More video arrived of the areas we had been softening. I realized—for the first time, astonishingly enough—that there had been *people* down there. The Republican Guard was not a *thing*. It was a bunch of human beings, with wives, and best friends, and babies who loved to be thrown in the air. The charred and contorted remains I saw would toss no more babies. Indeed, they didn't even look all that soft, more like briquettes than people.

A wave of revulsion and shame hit me. Like most everyone in America, I had been suckered. I had become part of what Hannah Arendt, referring to the Nazi bureaucratizion of murder, had called "the banality of evil." What I had seen of the war had been a computer generated simulation, with perhaps higher production values than Nintendo, but otherwise the same. I had been placed in a reality which was sufficiently complex to seem like the real thing even though it was entirely manufactured.

A far more persuasive reality had been in the bunkers where several hundred thousand human beings had been treated to explosives which first sucked all the air out of their lungs and then roasted them alive. Meanwhile, the object of this exercise—the Butcher of Baghdad—in whose place we butchered so many ourselves, is still in power. In fact, he is there because we *want* him there.

According to James Derderian, a defense analyst at the University of Massachusetts, the War in the Gulf was a precise replay of a computer simulation which had been constructed in the summer of 1990 *before* Saddam invaded Kuwait. Called *Operation Internal Look 90*, the simulation had been accurate all the way to victory. Trouble was, it had included no endgame. The screen went blank end of the tape, and so did the administration. They looked up, blinked in the light of the real world, and said, "Holy Shiite! If Saddam goes, he'll be replaced by something worse!" No one had given that much thought while the exercise was in progress.

But never mind that. Saddam was old news. The camera was now on the Victory Parade. A patriotic exercise with my countrymen staggering on in TV hypnosis. The massacre, in which we may have incinerated as many as 400,000 while losing 179 of our own troops, was pronounced a great and courageous victory.

Not since Agincourt, when the technology of the English long-bow thoroughly undid the French, has there been such an unfair fight. But at least the English had the grace to mourn the French. They had been in direct contact with the humanity they had snuffed out. For us, it was a statistical exercise.

Suddenly, I realized that my America has become the most dangerous country the world has ever known. We are a country of unspeakable and unchallengable military power which is now under the impression that war is as easy, cheap, and fun as a Lakers game. In the field, we are so abstracted by our weapons systems that we can slaughter an army and never see a dead man. At home, we are so abstracted by television that we can commit these atrocities and then celebrate the courage of our executioners with ticker tape and Budweiser commercials.

Now America can't wait to kick some more ass. America's a vacant-eyed man in middle age, his lumpish belly barely contained in his Desert Storm t-shirt, yelling at his kids. The polls tell me he represents the overwhelming majority of Americans, 78% of whom say that the "victory in the Gulf" makes them "feel better about America."

Not me. For the first time, I am genuinely ashamed of my country.

And angry.

The object of my wrath is as virtual as its cause. I can't blame Dick Cheney or Pete Williams, both old friends of mine. In removing the merciless eye of the camera from any real gore, they were only doing what I would have done in their position. Many lessons were learned from Viet Nam, one of which is that if the folks back home can see Hell, they'll want to leave it. Given that Cheney had been told by the President and Congress to conduct a war, he set about, in his crisp analytical way, to see that it was done right this time. This meant exposing no voter to its reality until it was too late for anyone to object.

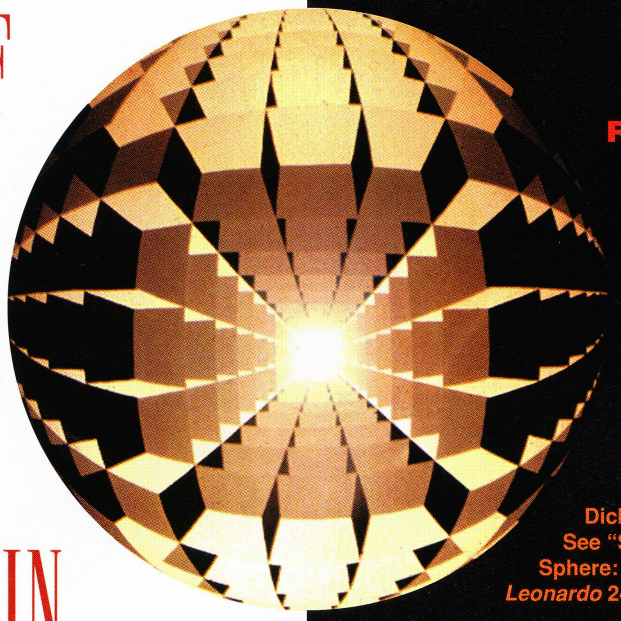
Thus when Bush exulted "By God, we've kicked the Viet Nam Syndrome once and for all," he meant merely that he had figured out how to give war a new lease on death—by keeping it at a distance and transposing another, denatured, reality between the electorate and barbecued bodies.

The enemy then is Mediated Information. This is a new, almost concrete form of abstraction we have developed, which Jean Baudrillard referred to when he wrote: "Abstraction today is no longer that of the map, the double, the mirror or the concept. Simulation is no longer that of a territory, a referential being or a substance. It is the generation by models of a 'real' without origin or reality: a hyperreal."

It is this "hyperreality" which has become the new and terrible American Dream. And it is a lucid dream, subject to selective mutation by the Dreamer. As long as we remain in it, no atrocity is beyond us, for we have kicked the Reality Syndrome once and for all. MF

THE ART OF THE FUTURE AND THE FUTURE OF ART... DISCOVER IT IN

LEONARDO



Dick Termes, *Solid Corners*, 1981
See "Six-point Perspective on a Sphere: The Termesphere," *Leonardo* 24:3, 1991

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Leonardo is published bi-monthly by Pergamon Press


Mark Leyner's
Galactic Colonoscopy
From Dense Dot
to Big God

IN CONVERSATION WITH LARRY McCAFFERY AND DUNCAN BOCK

Leyner's surreal fantasies bite off single-frame clips from cyberpunk and Shakespeare sonnets, but most often from media and pop culture: Presidential press conferences, pro wrestling, shiny-skinned perfumed magazines, men like Mike Tyson and Bruce Lee (a poster of whom looms over his home computer) and women like Jessica Tandy. So it is fitting that, after the relative success of his second book, My Cousin, My Gastroenterologist, *Leyner should himself become a media creation.*

In his forthcoming novel, Steroids Made My Friend Jorge Kill His Speech Therapist: An ABC After School Special, *the hero is—Mark Leyner, notorious Übermensch cult author. "I'm not completely crazy. I'm not truly a household word," he concedes. "...But I am still very vulnerable to megalomania."*

Last year, Leyner was living in Hoboken, writing ad copy for DNA fingerprinting and other medical products. This year, he's still in Hoboken—but he's getting an 800 number for prospective Mark Leyner Cult members. Harmony Books is paying for this, along with other gimmicks budgeted to publicize the new novel. He explains, obliquely, that hyperbole is sometimes the only remaining standard of measure. What does this mean?

Leyner deals in obliquity, in suggestive semi-sequiturs: "grandma, you are the primordial monster you are the monster who predates chronology... when the big bang was heard, you were already a fearless businesswoman, throwing back your head and laughing yes! to all of life's challenges."

Leyner calls his stuff "rigorously crazy." One incident from his last book, My Cousin, *features a "sallow" android painter with "gyroscopic balance sensor, enhanced manual dexterity, advanced irony and image appropriation functions, and 600K-byte art history memory... the first of the automaton painters to exhibit simultaneously at Boone, Castelli, and Radio Shack..."*

He is well pleased to impersonate a media god. Leyner says he has always fantasized about becoming huge—but physically so: a big god whose intestines might contain stars. He also recommends colonoscopy as a path to self knowledge. Read on!

—McCaffery & Bock

David McGlynn

EXCUSE ME, ARE YOU A CYBERPUNK?

DUNCAN BOCK: How do you feel about being called a cyberpunk writer?

MARK LEYNER: I'm interested in technology, but no more so than in etiquette or what condemned prisoners want to eat before they go to the chair. To some extent my take on this stuff was parodic, so it's funny to see people call me a cyberpunk writer.

First of all, the term only makes sense when applied to a science fiction writer—which I'm not, although there's a lot of scientific language and scientific issues in my work. But, if people talk about cyberpunk as a style that's very dense with information and very fast, then perhaps it does apply to me. Maybe I'm the first cyberpunk writer who's *not* a science fiction writer.

Actually, I figured recently "All right, I'll take that seriously—I'll pay more attention to the techno-futuristic aspect of my work. I'll become a cyberpunk writer for a couple of days, if that's what they're calling me." So the beginning of my new book has even more of that.



David McGlynn

DB: What does the scientific language and imagery in your writing mean to you? Like the "infinitely hot and dense dot" in *My Cousin*, which seems to be a black hole image?

ML: It may also be a description of the universe in the moment preceding the Big Bang, when everything was concentrated into an infinitely small space at unreal temperatures—temperatures so high that they made any kind of matter impossible. I mean, these things are ridiculous—it's impossible for anyone to imagine what they're like.

LARRY McCAFFERY: That scene in the bar where the guy starts jerking off and "shoots a glob of dehydrogenated ethylbenzene 3,900 miles towards the Arctic archipelago"—do you actually research any of this? Would any of these technical terms actually fit these situations?

ML: Mostly I'm playing. Those chemicals I used to describe that guy's sperm and the stuff he uses to rub on the woman's clitoris—well, I got them out of a chemical engineering magazine. I knew that they were at least liquids. But as to what they would do on contact with actual human skin, I have no idea.

What interests me in creating a passage like that isn't the reality of what I'm describing, but *what it feels like to read language like that*. Using that elevated, exotic jargon creates an opportunity to use rhetoric in a way you don't usually encounter. When I say this hunk swaggers into the bar and he's got a dick made out of "corrosion-resistant nickel-based alloy" that can ejaculate "herbicides, sulfuric acid, tar glue" and so on—I mean, just the sound of that lets you know this guy is one mean motherfucker!

It's this collision of different kinds of rhetoric—phallic rhetoric and the rhetoric of technology—that produces this bogus sense of power and authority. Their effect isn't much different—this hard-boiled, tough-guy lingo and scientific prose that's all no-nonsense and knows exactly what it's talking about. And when you have these things intersecting so you see them together, it's very funny.

THE CENTER IS EVERYWHERE

LM: Were there other non-literary forms that might have influenced your sensibility while you were starting out as a writer?

ML: The first year I was at Brandeis I took a course in American painting from a guy named Karl Bells, who had written a book on rock'n'roll. That course had an impact on me. De Kooning, Rauschenberg and Jasper Johns. I was especially intrigued by Pollack.

He was sort of a rock'n'roll painter, in that he was after maximum intensity, using the entire canvas, *having a center everywhere.*

LM: It's like Stevie Ray Vaughn's approach to the blues, where every moment is maximally intense.

ML: Right—and my aesthetic impulse is towards the Stevie Ray Vaughn-meets-Suicidal Tendencies approach. The fast burst that never stops. I was a Rolling Stones fanatic—more precisely, I was a Keith Richards fanatic—I had a band in high school. There's a guitar solo Richards did that I use—consciously or unconsciously—as a model of what my work should be like. It's the guitar solo in "Sympathy for the Devil," where he creates this sharp, shiny, incredibly nasty violent burst. There's no lead-up to it—it's just suddenly *there,* like a rain of razors.

LICK THIS BOOK

LM: This foregrounding of language itself rather than narrative or character—doesn't this have more in common with what we normally think of as poetry rather than fiction?

ML: I'd say that there isn't much difference between my work and poetry. The main differences are probably those of attitude. I avoid the smug, precious quality that poetry can have. Poets so often end up isolating their lines in the middle of the page without having any justification for sticking them there—except that they're writing "poetry."

I figured that if I had an 8 1/2 X 11" page, I should fill up the *whole* page. I want each page I write to be like a page of blotter acid my readers are ingesting. No white spaces. This overload of impressions that would *do* something to the readers after they're a couple of pages into it. I was interested in *fucking around* with a medium, wanting to be a troublemaker, and feeling I had an idea of how to do this in fiction. I felt I could make a lot of trouble by making every sentence astonish, grab people by the balls, irrespective of the usual bullshit fictional contexts.

I always had this notion that I want my work to be written in such a way that you could toss up all the pages of a piece, throw a dart at them while they're in the air, and wherever that dart lands there'll be a really audacious, interesting line. No matter where you pick up in a piece of mine there's not going to be a single slack verbal moment—no empty transitional phrase or routine expository sentence *anywhere.* I won't settle for anything less than maximum, flat-out drug overkill, the mis-use of power.

LM: But if your aim is to make every single sentence intense, then you can't create "characters" and "plots" in any usual sense. Was it difficult for you, as a fiction writer, to ignore these things?

ML: It's not as if I went through an aesthetic crisis in deciding not to write narratives. From the beginning my impulse towards narrative disunity came from that desire for maximal input rather than from any sense of wanting to rebel against realism. I never had to go through all the shit that postmodernists like Ron Sukenick and Steve Katz and Ray Federman had to go through back in the 60's. I came from the fictional womb like I am. The postmodern battles had already been fought and won.

EVERYTHING I DO IS MERCHANDISEABLE

DB: How does it feel to be a cult author?

ML: All that attention threw me for a while. All I thought about was who was going to call me next and what's the next big thing that's going to happen to me. I'd have these flashes of getting *really* famous and rich from all this. I was *very* naive about it. The minute you're in the paper and called a cult for kids—which is basically what that *New York Times* article said about me—the TV and movie people go crazy. You could be biting the heads off chickens. But if they think it's appealing to that group they target—15 to 28 year olds who go to movies all the time and watch TV—they seek you out and say, "Let's do something." Then they ask, "Well... what is it exactly that you do?" They never know—they just saw "cult-something Mark Leyner."

It made it very difficult for me to work on anything, yet it seemed strangely appropriate. I was investigating public language, public information. How our public and private selves are intertwined. How we pretend they're not. I realized that if I extrapolated my excitement about what's happened to me—and what one calls delusions of grandeur—if I used that as the basis for a new book, it could be pretty fascinating and very funny.

So the book just started coming: Here I am, Cult Author. And a cult author must have a cult, an actual Cult, and the Cult must live somewhere—they must live here at Headquarters. And since Headquarters sounds somewhat paranoid and military, you need guards and sentries and underground tunnels...

And everything I do is public. I loll around on the roof of my headquarters; photographs of me are taken from spy satellites and then published by Rizzoli. There is nothing I do that's not for public consumption. Everything I do is merchandiseable. I had drinks with one of the head sales people at Crown, who said—with great enthusiasm—that I'm not writing a novel, it's a marketing plan! It's true. A lot of these things we'll actually *do*—thereby furthering my confusion.

I vandalized the grave of narrative fiction. I've exhumed the corpse and eaten it

PORTRAIT OF THE ARTIST AS A GLISTENING PINK RECTUM

LM: In both *Esther Williams* and *My Cousin* you occasionally refer to "Mark" and "Arlene" (your wife). Can we read all your work as being a kind of autobiography?

ML: Absolutely! Really, there is nothing in *My Cousin* that hasn't happened... in one way or another. Obviously when readers of a book written by a person named Mark see a "Mark" in the book, it will change the resonance of the rhetoric. That resonance interests me. It also interests me to try to make a ludicrous, mythic presentation out of my banal life. I'm very interested in Homer, for instance. In Homer, you can't find a sentence that's not about some sort of gigantic, larger-than-life event. Talk about not having transitional sentences! Today we don't have that kind of subject matter, which is why it interests me to try to project it into my work.

This relates to why I've become so interested in body building. Body building is ultimately an adolescent thing. I'm conscious of being immersed in all this adolescent, macho, heroic fantasy stuff. I've always been interested in becoming this *big god*, picking people up and talking to them.

You can see this very clearly in something like "i was an infinitely hot and dense dot," which is about this person who literally is getting bigger and bigger. That's what I mean about these pieces all having happened to me. I really have always fantasized about growing and expanding into this all-powerful being.

LM: The title *My Cousin, My Gastroenterologist* seems to carry with it the suggestion that this is going to be a book about the "inner" you—

ML: Exactly. Have you ever had a colonoscopic examination? They snake this fiberoptic tube up through your intestines. It doesn't hurt—they give you demerol and valium in an IV—and they have a video camera on the end of this snake so you can watch the whole thing. It's a weird experience, lying there, high on demerol and valium, watching this TV screen with your intestines—probably the most introspective view of yourself you'll ever have. No kidding, you should have one done even if you don't need one.

Anyway, I wanted *My Cousin, My Gastroenterologist* to be like a colonoscopic examination of my insides—and the insides of this body of information I've been swimming in. That's why I maintained the gastrointestinal metaphor the whole time I was working on the book. I had originally planned to use one of my lower-GI X-rays for the cover of the book—I doubt if *that* had ever been done before. That seemed like a great way to get across this sense of an author exposing himself. Just before I finished the book, I had this idea in the shower of how the book could end. This guy, through the use of growth hormones and weight lifting, was going to become galactically immense. So in order to do this macrocosmic look at his insides, they had to perform the colonoscopic operation by snaking the optic tube through one of those large observatory telescopes. I wound up not using that image to close the book, but I still like it.

TANG DYNASTY CYBERPUNK

LM: Your generation of writers seem to have a different relationship to pop culture—it's simply your milieu .

ML: I think nearly everybody in my literary generation feels this way—the cyberpunks and the new "minimalist" writers and so on. The other day I was reading some T'ang poets, Li Po and Tu Fu, and I thought to myself, "I'm in the Tang dynasty..." as in, *people who have grown up drinking Tang*, this simulated, completely artificial orange juice product. That's as much a part of me as the color of my eyes. It's not like I'm making a choice about whether or not to acknowledge it or comment on it. I'm literally made of it. It is me.

DB: Is your writing a metaphor for the media-centered society we live in—the way it blurs and jumps around?

ML: I'm sure it is. I don't know that I consciously try to duplicate an American citizen's apprehension of the information glut. But I've thought for the past couple of years that most writing doesn't hold a candle to the exhilaration of just being alive and media-conscious.

Look at a television commercial—good ones will pack thousands of images into thirty seconds, sixty seconds. I think they're useless in terms of selling the product, but formally they're very interesting. The style of commercials has affected every other art.

My dream is to write a book that you could give to someone who *hates* reading books—who loves watching TV, going to movies, and getting into fist fights at parties—and hear them say, "Yeeaah, this is great." So I have *very* rigorous standards for my work.

NEVER SAY ARBITRARY

LM: Since you don't use the usual devices of plot and character to organize your writing, how do you know when a given section is finished—or is this mostly an arbitrary decision?

ML: It's definitely not arbitrary, but it's "not arbitrary" in a way that's difficult to talk about. There's a sense of closure in my pieces that has nothing to do with plot development or plot dénouement but which I'm very aware of when I've arrived at it.

There are certain formal concerns in a given piece, and it's working

through these concerns that produces my sense that a piece is finished. For instance, I was very aware of "Gone with the Mind" as a liturgical piece, so when I read it, I feel like a preacher.

LM: I know that your work has a fairly long gestation period. Could you describe your work habits, day by day?

ML: My work evolves by a process of accumulating information or language, including stuff that is purely imagined—but there's no hierarchy that places imaginary materials above other things. I'm always writing down what I come across on the radio or television.



David McGlynn

It's as if there's this constant static—or white noise—around me that I can tap into. I'm a fanatic about having external things going on around me. When I'm working, I always have the television going, even with the sound off—just so it's flickering away there on the edges of perception. And I'll have a few magazines spread out in front of me, and the newspaper, and whatever I'm reading... *The Iliad* or a cyberpunk novel. I love the feeling of having all that information around me. I feel that way anyway—sensory overload is my environment. That's what makes me feel serene. Some people like trees and lakes.

MEDEA SÉLAVY

I became fascinated with Duchamp in college. I read everything about him I could find. I liked the idea that he would have this piece he was working on that he let dust collect on for several months—and then he'd let the dust formation become part of the piece. That's the way *I* proceed with my work.

There is a certain point when I have been gathering materials—and I'm always gathering materials—where I decide to enter a new stage. It's almost like I'm now entering the text, this information, bodily—I dive into it and begin to metabolize the stuff. I dance in it, play around in it. And then I start to see certain relationships and rhetorical possibilities.

LM: What leads you to that next stage?

ML: Often it's a sense of despair or boredom. Writing can become very depressing to me. It's a very difficult process. I'll be accumulating all this stuff, worrying about it, and not seeing what is interesting about it anymore. And usually at the absolute nadir of those feelings I'll decide to do something, perhaps for audacity's sake alone. It's like having a huge white wall in front of me and suddenly deciding I want to have an elegant, exotic, obscene painting on it. So I'll plunge into all this accumulated verbiage and find a line to start something with, like "Gather the 10,000 americans in irreversible comas." It's like suddenly I've found that guitar solo to open with—POW!

LHOOQ, MAYBE—BUT LOOK AT THESE BRUSHSTROKES!

LM: One of the features of postmodernism is the refusal to distinguish between pop cultural sources and "serious" ones...

ML: I *always* hated that. I despise the contemptuous attitude so many professors seem to have about television, rock 'n' roll, and certain kinds of movies. Part of this is motivated by my hatred of any kind of authority figures, especially academics, professors. One of the things I liked about my work, once I realized what I was actually doing, was that it was so elegantly written that it would be impossible for these academic types to dismiss it as "only pop culture."

Electrified, elegant, hardcore, beautiful—the sense of hierarchy that says these can't all co-exist seems like something worth demolishing to me. And there's been this sense of perverse glee in knowing I've found a way to do this.

That's one of the reasons I've always felt so drawn to Duchamp. Duchamp was personally elegant. He was very handsome and smoked his cigars in a beautiful manner. He played and wrote about chess. Meanwhile, he was making these radically audacious objects—and making them so well. The beauty and precision of the way the *screws* were set into his constructions...

So even though his works were formally daring and funny and bizarre, they were unassailable because he had done them so *well*. His work was profoundly troubling, even to people who hated what he was doing, because its beauty and elegance couldn't be denied. That's the kind of response I want.

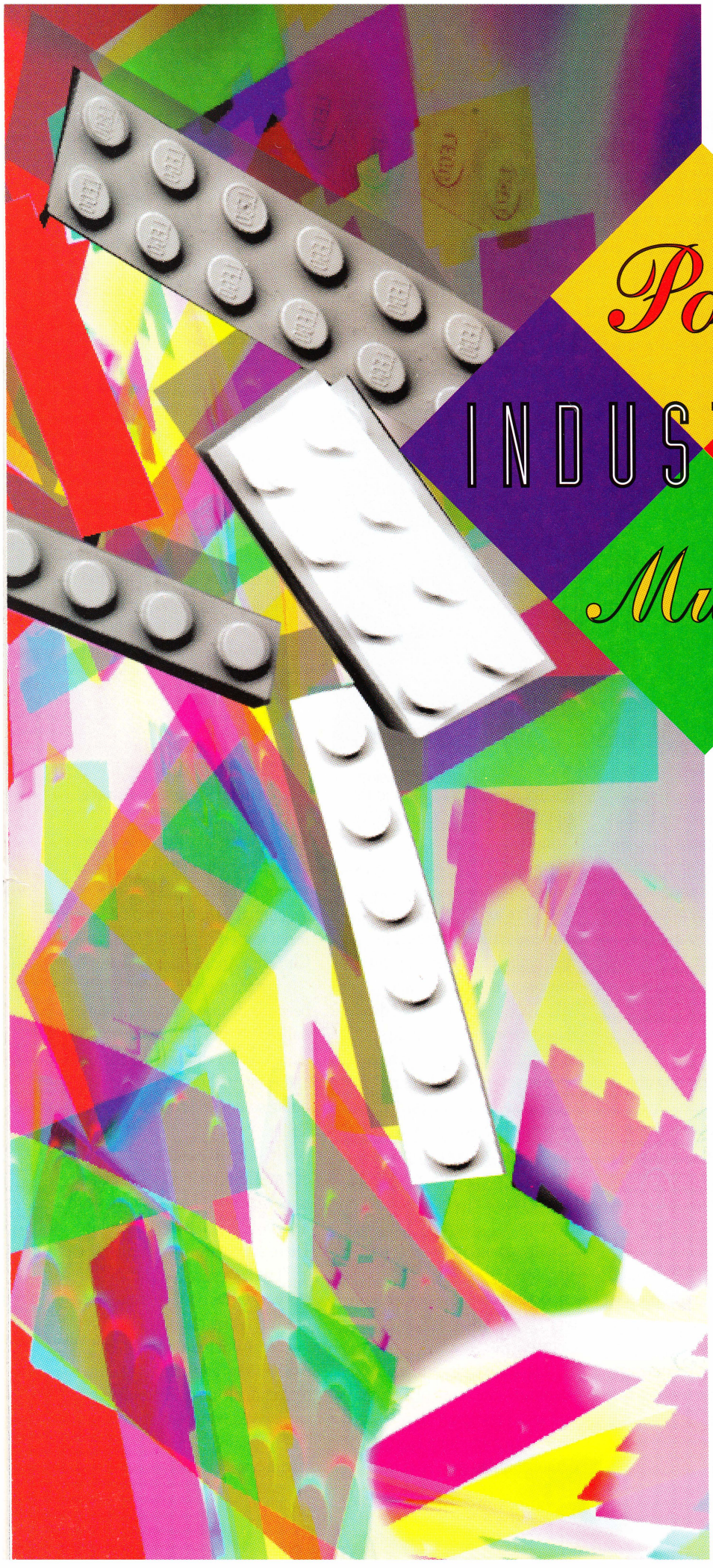
LE CORPS DÉLICIEUX

DB: Do you think fictional realism, or the traditional narrative, is a dead end?

ML: As a style? It's certainly not a dead end commercially. I think people have a real need for sequentially orchestrated fables. I feel it myself. I mean, I *love* Hans Christian Andersen.

But for me as a writer, it's been dead since I started. I vandalized the grave of narrative fiction. I've exhumed the corpse and eaten it. You know? I'm doing something completely different.

It's almost as if I'm in a different medium, so it ceases to be an issue for me. It bores me *utterly* to hear people still talking about it. There's no reason why someone can't write a very traditional story, and there's no reason someone can't do something *else*. I took off from the assumption that plot, setting, and character were conventions to be manipulated and played with. Or abandoned. Or humiliated. Anarchy was my starting point.



Post INDUSTRIAL Music

From Psychic Terrorism to the Post-Industrial Dance floor

Gareth Branwyn

"We're interested in information, we're not interested in music as such. And we believe that the whole battlefield, if there is one in the human situation, is about information."
—Genesis P-Orridge (1982)

EXPRESSION THROUGH AGGRESSION

Early rock 'n' roll used pleasure as a vehicle of subversion. From punk music forward, psychic terrorism has been the principal means of conveying the rattled sounds of the underground. In the industrial arena, this form of sonic assault has been offered as a massive wake-up call to the legion of drones who freebase television and Madison Avenue's *trend du jour*. "Wake up you idiots, you're a marketing strategy," goes the call.

The first sounds of "anti-Muzak" have echoed a great distance from the early garage electronics of Throbbing Gristle, SPK, and Cabaret Voltaire to the slick sounds of today's industrial. The current style is so different from the roots industrial of the late 70's

and early 80's that "post-industrial" would probably be a better label. Little is left of the early theoretical purity, the impact of the shock tactics, or the possibilities for cultural subversion. "Industrial" has come to encompass everything from the ambient sounds of the Hafler Trio to the "Überthrash" of Ministry to the rap of MC 900' Jesus and the ideologues at Consolidated. If there are any threads that connect these bands (sampling, a preoccupation with darkness and decline, and socio-cultural ostracism) they are overcome by the diversity of musical styles and *raisons d'etre*. Sub-genre labeling is offered as a way of dealing with this. People talk about "industrial dance," "ambient-industrial," "industrial noise," and "industrial thrash," to name just a few. Perhaps the most sensible demarcation of post-industrial is between all the experimental work (noise, ambient, sound collage) and the many flavors of industrial dance (industrial-thrash, industrial-rap, techno-industrial, attack house, etc.)

Today's legitimate industrial bands are lost in a sea of imitators and non-industrial music (some of it excellent in its own right) that has been labeled "industrial" for marketing purposes. As the industrial (dance) genre became popular, it was reduced to an *image* of terror and defiance that *sells product*. This killed almost everything "important" about industrial music—at least as a strategy for cultural confrontation. The economic history of rock 'n' roll has proven that the commodity culture can maintain the façade of rebellion while removing any of the vitriol that may prove dangerous to the status quo. Industrial music is the latest victim. "Image over action, style over substance." The pop culture industry wouldn't have it any other way.

> *"Noise is about fascination, the antithesis of meaning. If music is a language, communicating moods and feelings, then noise is like an eruption within the material out of which language is shaped."*
>
> —*Simon Reynolds* Blissed Out: The Raptures of Rock

Noise has overtaken information in our age. Signal and noise have switched places. We live in the value-dark dimension, a black hole of deconstructed values and exploded worldviews. Early industrial music looked at this cultural wasteland, gathered up some of the junk and decided to make music with it. In the process, they discovered new possibilities for "art noise," explored the boundaries of music and anti-music, order and chaos, terror and bliss, beauty and bestiality. If the age of empire was dying, industrial music was busy scoring the funeral march.

As industrial music has "advanced," so has music technology. With the introduction of MIDI systems and sampling, the metal-on-metal rhythms of the junkyard were replaced by the cut-and-paste sounds of the videodrome. The nightmarish hissings of the smokestack industry were replaced by the sound-collaged marketspeak of the culture industry. The fascinations of industrial artists have also shifted emphasis from control through subjugation and outward violence to the powers of pleasure-control and the mesmerism of the media simulacra.

Through all this run noise, cut-up nonsense, and the cybernetics of feeding the garbage back into the system to hasten its decay. Experimental industrial artists—like their close cousins, cyberpunks, the concrete poets, and the modern primitives—have the intuitive wisdom to know that post-verbalism and irrationalism are important territories. The breakdown of an old language holds the opportunity

Strong Current
Recent and recommended industrial recordings

Experimental Industrial
by Kim Cascone

The Hafler Trio—*Kill the King* (Silent Records)
Although this may seem like a shameless plug (Silent is my label), this work is too masterful to ignore. Andrew McKenzie has taken the next step in his artistic evolution, constructing a sonic landscape with no recognizable landmarks. Listeners are called upon to navigate the terrain on their own. This is accomplished by confusing the listeners' ability to distinguish between sounds recorded in the field from sounds that have been electronically altered or newly created. McKenzie has become very adept at creating "context" with his Hafler soundscapes, and he has applied this aesthetic approach to all phases of the release. Oblique, multi-level images, mystical titles, and obscure references all help in "decentering" his audience. *Kill the King* puts its listeners into a rich classical ambience that could be an audio analogy to a Peter Greenaway film.

Babyland—*Babyland* (Flipside)
When industrial music began to develop as a genre, it didn't take long for it to split off into numerous amoeba-like subgenres, each with their own specific influences. Babyland takes various interesting musical elements such as techno, hardcore, cut-up and industrial dance and sculpts them into a sound that defies labeling. Full of pillaged TV snippets and other junk from the media heap of our culture, Babyland reanimates this into a subversive view of the media ocean we're drowning in. Babyland is destined to be a major force in staking out a new territory of industrial.

Muslimgauze—*United States of Islam*
One of the more interesting genres to split from the host body of industrial is what I call "ethno-industrial." A pioneer group in this sound is Muslimgauze. In the early 1980's they became very politically concerned over the plight of the Palestinians and they dedicate their work to this issue. This latest release by Muslimgauze retains some of the hypnotic repetitiousness that characterizes their past efforts, yet their work has moved towards more dynamic structures. Utilizing armfuls of samplers, synths, and drum machines, they artfully combine everything with musicians who add an organic quality to these MIDI-Arabic tapestries.

Zoviet France—*Shadow, Thief of the Sun* (DOVe)
Since 1979, Zoviet France has led the way in creating a primitive and ritualistic type of ambient industrial. A soundtrack/filmatic approach using lush sonic paintings, mysterious textures and haunting voices, *Shadow, Thief of the Sun* was released to coincide with their 1991 U.S. Tour. If you were lucky enough to catch them live you know their capacity for invoking trance states.

The Pelican Daughters—*Fishbones and Wishbones* (CCP)
A little-known project from Australia, The Pelican Daughters are carving a new niche that might be described as "ethno-psychedelic ambient indus-

trial." If you can imagine Psychic TV influenced by Syd Barrett and crossed with the Legendary Pink Dots, then you may have a handle on The Pelican Daughters. They mix samplings from instructional records, ethnic music, and dialog from old movies with lysergic lyrics and surrealistic oneiric melodies.

Industrial Dance
by Paul Moore

Clock DVA—*Buried Dreams* (Wax Trax!) TT 62:21
The definitive release for the cyberculture revolution. *Buried Dreams* links high-tech and sub-culture to produce the cryptic journal of a brilliant madman. Frontman Adi Newton cites "advances in Virtual Reality technologies, Neural Netware, Morphic Resonance, [and] Ripperology" as background to his explorations on this album. With Clock DVA's exceptional sound sculpting, this is all challenges and rewards.

Young Gods—*L'Eau Rouge* (Play It Again Sam, USA) TT 40:56
The energy generated by this trio (vocals, drums, samplers) outpowers any of the guitar-hero bands. Sampling from brash heavy-metal guitar licks and the classical canon—and tightly melding the two—the Young Gods create a music that simply could not exist without this technology. Intense drums and vocals add an expressive emotionality often lacking in music of this genre. The future of rock 'n' roll!

Yeht Mae—*1000 Veins* TT 58:58
More music about laboratory-created viruses, rampant technology, and deterioration of the family. Sound intensifies lyrics, with mangled guitars, whirring robots, and static bursts layered on deep drums and stuttering keyboards. And on "Running Away," they push the genre one step further with funk horn loops, bass lines under Puppy-ish vocals, and astral melodies. Yeht Mae even take the well-used practice of scoring documentaries and make a fresh and interesting song out of "Ethnic War." I've been listening to this one. *Buy on sight!*

Consolidated—*Friendly Fascism* (Nettwerk/IRS) TT 64:47
Consolidated are a filter for the stream of information hurled at us by mass media and the pop culture industry. George Bush, "Our Leader," becomes a Klansman, "Entertainment Tonight" is revealed to be a meaningless, endless loop of feedback, and America's current nationalistic frenzy merely a retracing of Germany's path in the 1930's. It's rap that relies more on clarity of message than cleverness of rhyme. With production by Meat Beat Manifesto's Jack Dangers, this album takes their extremely dense sound to a wicked extreme. This will shake you up.

Front 242—*Tyranny for You* (Epic) TT 54:52
Sounds like it's been beamed back through time by a band from the future, always out of range of any would-be imitators. The sound is icy percussion, piercing synth lines, transitions fast as channel-zapped television. Taking today's music machinery to its limits, this is the sound of a brutal master reciting his plans…

Kim Cascone is the president of Silent Records, an experimental industrial label and mail order business. They carry their own releases, imports, and hard-to-find titles as well as industrial and experimental music zines. A free copy of their catalog is available from: 540 Alabama St., Suite 315, San Francisco, CA 94110

Paul Moore is the editor of Technology Works, an industrial music zine. Each issue is filled with reviews and band interviews. Sample copies are $1.50 from: Paul Moore, PO Box 477, Placentia, CA 92670-0477

for a new one. The resonant echo of a primal scream shudders to infinity.

APOCALYPTIC BONE DANCING

While the industrial scene has lost some of its underground values on the way to the dance floor, it would be unfair to write it off as culturally irrelevant. Front 242, Front Line Assembly, Clock DVA and Young Gods are all examples of bands that still bleed when you scratch their surfaces. The same cannot be said of Manufacture, My Life with the Thrill Kill Cult, and some of the incestuous "stupergroups" at WaxTrax!

Even if the radical message of industrial has been recuperated, victimized by overexposure and marketability, the music still holds out the possibilities for transformation: *on the dance floor!*

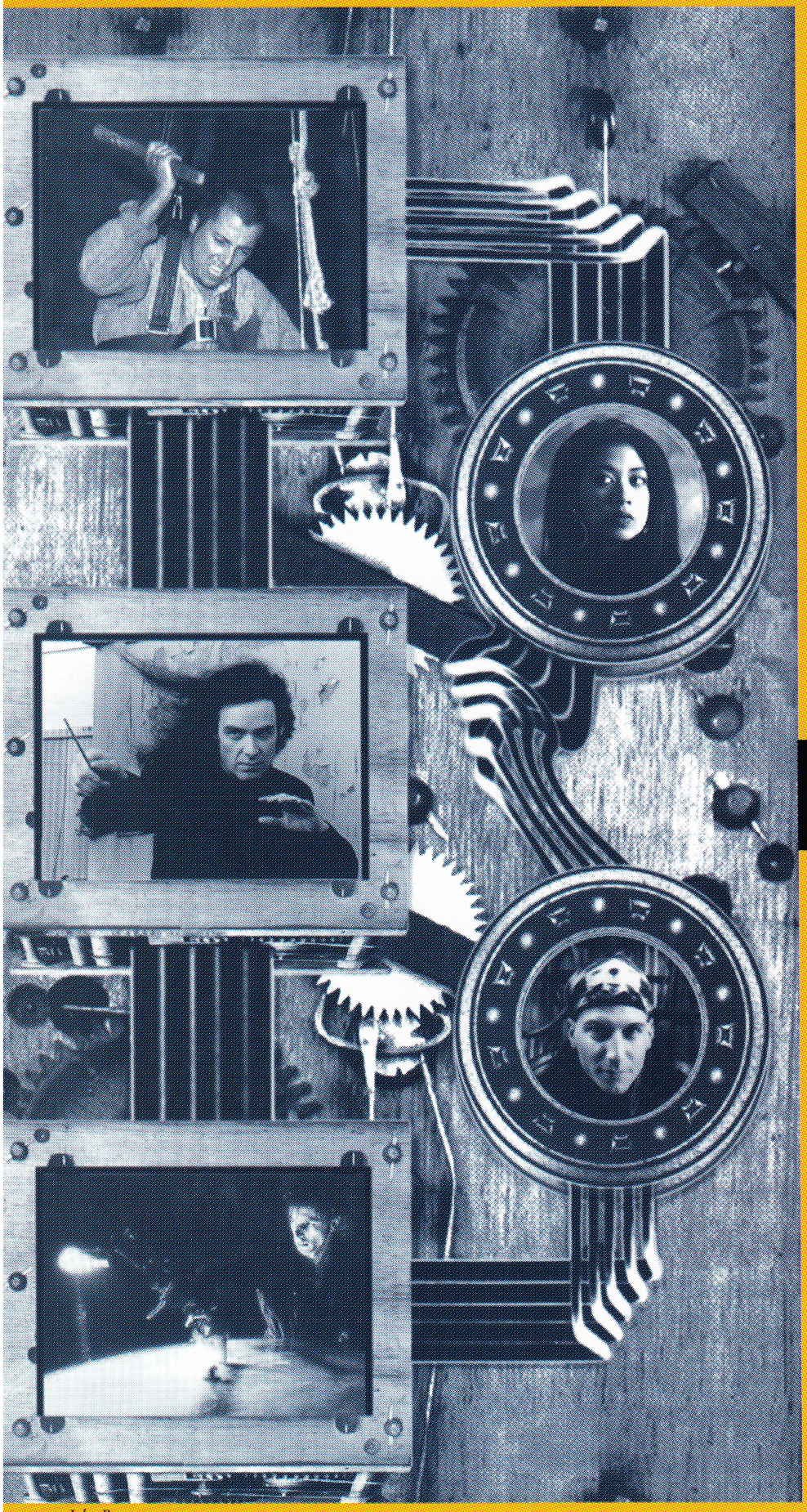
Industrial is white-hot funky dance music, squeezed out of everyday white noise. "Softened" news and other fragments from the soundtracks of our lives provide the back beat, over which snarls a demonic, from-a-sonic-distance narration of domination, control, and disaffection. Post-Industrial dance (like early Industrial) is built around the sounds our culture makes as it comes unglued.

There is something totally sublime about thrashing to industrial music on an urban dance floor with punks and goths and nerds and rastas and other outcasts. The DJ, high on a perch, surrounded by banks of electronic equipment, hammers the audience with the latest from Nine Inch Nails, KMFDM, Coil, Skinny Puppy and Nitzer Ebb. Lasers, placed at his feet, slice through the smoke that's being pumped out from below. People scream and howl, beating their arms against their bodies. From the balcony, you have to squint to see through the sympathetic pollution of smoke, heat, and light. The dancers writhe, jerk and stomp, bashing into each other—*true* friendly fire. I throw my arthritic body into the fray along with the rest. I sacrifice "the meat" to a high purpose—psychic ecstasy. I'm exhausted, I'm in pain. I'm frightened by the self-imposed danger. And I'm as high as I can remember. The DJ punches up Front 242's "Gripped by Fear." I go nuts, put the pedal to the metal, and spin around in dervish circles.

Chant: *"Recession/repression/regression."* The throb on the dance floor becomes a ritual of thermodynamics… *"Your tyranny I was part of is now cracking on ev'ry side…"* and I feel like we're pounding the brutal age of sword & steel into history. *"…your own life is in danger, your empire is on fire."* Questions of sellout be damned—in this moment of private ecstasy, the industrial program redeems itself.

I awaken the next morning to a call from a friend. Rumors are flying that WaxTrax! is negotiating a sale with Warner Brothers! Last night's bliss—and the future of industrial music—is brought to you by the global mega-corporation? "Th…th…tha…that's all folks!"


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DEL
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John Borruso

The Dark Show: Sound Traffic Control

INTERVIEW BY BOB GELMAN

Sound Traffic Control is a collective of solo artists—musicians, sound designers, DJs and engineers—who merge their specialties to create a unified media rite that immerses the spectator in an omniphonic spatial soundfield.

Naut Humon is conductor, controller and curator for the Sound Traffic Control show. He originally conceived the idea while touring the U.S. with Rhythm & Noise. Other participants in the collective performance include controller Max Delysid, a veteran of Seattle's industrial music scene. As well as playing keyboards in Sky Cries Mary, he was a founding member of MKULTRA UnSound System performance group—infamous for their techno-psychedelic visions of governmental mind control. Timothy North contributes his Hoverdrum—an 18 foot tall percussion device held aloft by springs that swings wildly over the crowd. Maryanne Amacher is a composer, performer and multimedia artist who joins the show as a sound designer and conductor. Cyrnai layers vocals, harmonies and drum treatments with mixboard manipulations that generate rhythmic

STANDING IN A POOL OF OIL, BARRY STRIKES THE HARP WITH METAL GLOVES THAT SET OFF BOLTS OF LIGHTNING THAT ARC BETWEEN THE STRINGS

ethnotronic seizures. Barry Schwartz is president of Environmental Debris Management Systems—a global scavenging agency that provides police escorts for garbage retrieval and proliferation. From this industrial refuse he creates enormous mechanized sculptures which dominate the STC environment. Now, dim the lights as we ungag our subjects…
—Mondo Connie

IF YOU HAVE TO ASK, YOU'LL NEVER KNOW

MONDO 2000: What is Sound Traffic Control?
NAUT HUMON: Well, I can tell you what it's not. It isn't another cyber-industrial band doing rehashed blueprint versions of their CD songs live. It isn't a 3D multimedia extravaganza with slides, lasers, films, video processing, dance and glance. It isn't an "interactive" performance where spectators are encouraged to sing or move along with pep rally icons, preaching the current politically correct idea to their already converted groupies. It isn't a subscription to the resurrection of the *Retro*-active phenomenon so when the pendulum of the 60's swings back towards the 90's we still have all this excess baggage to unload simply because the latest generation hasn't experienced it yet. And those of us who claim "experience" or acquired wisdom must occasionally relinquish these ghosts, go back to the drawing board and use the sensory sharpener.
MAX DELYSID: STC isn't any of those things because it was impossible for STC to exist until recently. We wanted to re-establish our own personal method of interacting with machines, to use them as co-conspirators in aesthetic execution. But the technology just wasn't there. Now it is, and we are able to perform in a way that suits our needs, while offering an alternative to Rhythm & Noise's traditional live incarnations.
TIMOTHY NORTH: We felt a need to delve into areas of performance that we haven't worked with before—such as a more complete bonding by emphasizing acoustic pulsations that interrupt and violate click-track attacks.

A RELENTLESSLY VIRTUAL FUTURE

M2: It sounds more like an attitude towards performance than an actual definable "show."
NH: Yeah, an attitude adjustment perhaps. I hope that it will lead to fresher philosophies for dealing with the *artificially intelligent virtual novelty zone*; where achieving fun with a virtual fantasy interlock becomes every cyber-yuppie's dreamstate investment potential. Disembodied wrap-around TV—a way to the future or a way out? VR *is* a major component of the future imperative. Like it or not, this must be embraced and magnified. We look at STC as a vague prototype model for experiences outside the home-entertainment eyephone bodysuit where people will still need to come out of their home, office or headset to congregate with others in large non-proscenium spaces sharing in a "larger-than-virtual" event. Maybe this will eventually spawn a "Back-to-Reality" movement after computer-generated replicas become commonplace.
TN: What I want to know is—what's going to happen if your power goes out? What's up with your data?

DEHUMANIZATION? FASCINATING...

M2: Do you think people will find live performances a novelty, much like computer-generated ones are now?
MD: With graphics technology going the way it is now, pretty soon you won't be able to tell the difference. And by then who'll care? People will be better represented by their computer images than by their physical ones. This is already happening on BBSs, and soon we will also be able to create a computer face to present to people along with our ideas.
NH: I find this process toward dehumanization through technology in terms of human history an intriguing development. The prospect of seeing entire robot tours (i.e. Kraftwerk), automated VJ/DJ "virtual" jockey club environments, or a mechanized performance like SRL that is divorced from its human counterparts is as interesting to me as any flesh-and-blood show. However, tomorrow may yield a hybrid perception where contrasts between man and machine will be less significant. VR surfaced as a practical concept after NASA's research on piloting robots by remote. The whole thing was about putting man's brain in a robot.
TN: The old folks' homes of the future may be nothing more than VR RVs, where they all embark on a constant "final" vacation…

MAYBE THIS WILL EVENTUALLY SPAWN A "BACK-TO-REALITY" MOVEMENT AFTER COMPUTER-GENERATED REPLICAS BECOME COMMONPLACE

KEEP A FOLLOWING SPOTBLOT ON THE SINGER

M2: How does Rhythm & Noise demonstrate these notions in STC?
NH: Well, for one thing, STC is not *exactly* a R & N show. The project as it now stands consists of a number of independent artists who through the years have gathered together for a mutual performance enterprise. These are sound designers, hackers, musicians, disc jockeys, engineers, vocalists and the like who search out and destroy a collective past in order to chart out an uncertain future.

The creation is a *dark* show—the upside down alternative to the 60's light show. Sensory input is sometimes stripped bare rather than added to so that, through these temporary blindings, a different type of visual enhancement can occur. The analogy to the air traffic control tower is apparent, with the audience roaming the "runways" between musical aircraft that "land," "take off" or "crash" through the sonic world.
TN: You could almost say that STC takes care of the "airport" where the actions take place. But our network is no more the show than an airport is your vacation.
M2: Why did you decide to use this approach?
NH: In the 80's many of the people that are now involved in STC were involved in Rhythm & Noise, an SF-based, industrial style "vaudeo" outfit which appeared throughout the country

THE OLD FOLKS' HOMES OF THE FUTURE MAY BE NOTHING MORE THAN VR RVS, WHERE THE PARTICIPANTS EMBARK ON A CONSTANT "FINAL" VACATION...

and released several LPs. The static confines of a "band" idea had to be stretched toward a more mutable notion where the cast and characters could change depending on the needs of each particular live episode. This way we could accommodate solo and ensemble performances under a single presentational umbrella. The resulting possibilities for modifying the trajectories of the various sound sources are utilized in an orchestral manner.

AUDIENCE ABDUCTION & TORTURE, THAT SORT OF THING...

M2: Could you elaborate on R & N's background endeavors?

NH: R & N was first conceived in the late 60's as a theatrical type of group involved in audience participation events. For instance in our *Dancing on Dead Rock* [1969], we set up a section of the Seattle underground, an old area of the city that the current city was built on top of, as a darkened womb and made the spectators crawl through a mining tunnel to get to it. All the while we were hurling furniture around them and using giant wind machines to create a torrential downpour. When they finally reached the end of the tunnel there was a void—no lights, no exit, nothing. As they started wailing, we would record their screams and amplify them. After a while, they were able to escape and there were reporters who would take flash pictures and interview them about their experience.

Other shows from the 70's dealt with further audience-abduction techniques utilizing factory assembly line settings, moving the visitors by cranes in solitary cargo crates. Larger-scale productions fostered 12-hour nocturnal excursions by bus, van, and boats through an entire county. The finale of our last 80's U.S. tour was an epic in LA with Comfort Control Systems of Phoenix. We integrated segments of the piece for body-machine interface—MIDI-controlled, arc-welding Inquisition torture instruments.

M2: What kinds of surprises await us at the STC show?

MD: Then it wouldn't be a surprise!

BIG ELECTRIC NIGHTMARE

NH: We can reveal to you some of the people that will be involved and a little about their particular performances—for instance Timothy North's Hoverdrum and Barry Schwartz with his sculptures.

WE INTEGRATED SEGMENTS OF THE PIECE FOR BODY-MACHINE INTERFACE, MIDI-CONTROLLED, ARC-WELDING INQUISITION TORTURE INSTRUMENTS

The Hoverdrum is a giant percussion sculpture that hangs from the ceiling and swings back and forth to the unrelenting tempo of Tim's drumming. The structure hangs from springs that have microphones on them. This adds an eerie screech as he rocks back and forth, and also puts the installation temporarily out of his control during certain portions of the show.

Sometimes people in the crowd grapple with the apparatus and shove it around as well. Barry's sculptures are like giant electrical nightmares. He has one device called the Turntable that is a huge rotating stainless steel disk on which he drops a stylus of dry ice. Another device is the Harp—a monolithic upright bass with electrically charged piano wires. Standing in a pool of oil, Barry strikes the Harp with metal gloves that set off bolts of lightning that arc between the strings.

WHO ARE THE CONTROLLERS AND WHAT WILL THEY DO TO US?

M2: In your material on STC, you mention "controllers" frequently. Who are they and what are their functions?

NH: The controllers right now are myself, Max, and Cyrnai. Max is the designer/programmer of the computer network that manipulates the STC environment, and Cyrnai is a vocalist/music programmer/collaborator with R & N. The controllers are the conductors that determine the direction that the show will take, when and where different musical sections enter the "airspace" of the performance.

M2: How does this network function? Has it been used before?

NH: We used the network at a performance in Japan for the Matsushita Electrical Company, in July 1991. They have a place in Tokyo called P/N Hall, where all the walls are filled with speakers—over 750 in the room! I played there with Maryanne Amacher, who does incredible work with psycho-acoustic sound characters and used a primitive version of the software that we have now. It was a test run for the system, and it provided an informative springboard for future enhancements.

THE TECH BEHIND THE CURTAIN

MD: Basically, the network is composed of multiple Mac IIs that communicate with each other and control MIDI events in the environment based on certain stimuli that they receive. For instance, suppose that one Mac is running a MIDI sequence and sending SMPTE. When that gets to a certain point I may have the other computer change the mix in the room based upon information about where the most people seem to be. This is a very simple example, and the things that we have incorporated into the show are far more interesting. All the software is written with [Opcode's] MAX, because it was the most useful platform for this application.

In the future I'd like to expand the network in a variety of ways, perhaps introduce parallel processing, realtime DSP, or remote control via modem, so we could have controllers off-site—altering the flow of the event from their home computer, maybe with a video screen showing them doing it, but not actually "there."

PREMISES MADE TO BE BROKEN

M2: What's ahead for Sound Traffic Control?

NH: We are setting up a few event sites around the U.S. There is also strong interest in bringing STC to Europe, and a return to Japan. We are also working to broaden the international base of artists that stylistically affiliate with the STC network. But mainly we must keep turning inside out any premise stated here. To assume or presume nothing. *To persevere & be severe.* M2

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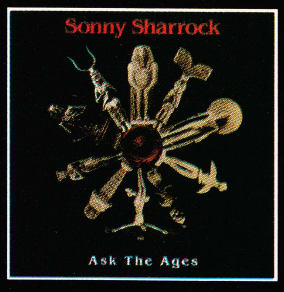
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Digital location recording captures the power of Gnawan spiritual trance music



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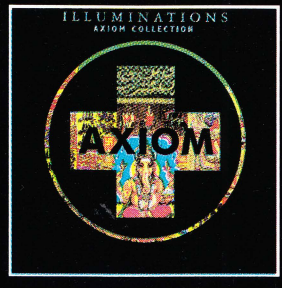
MANDINKA & FULANI MUSIC OF THE GAMBIA
Ancient Heart
Digital field recordings of traditional Gambian styles, co-produced by Foday Musa Suso



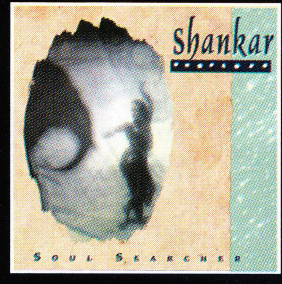
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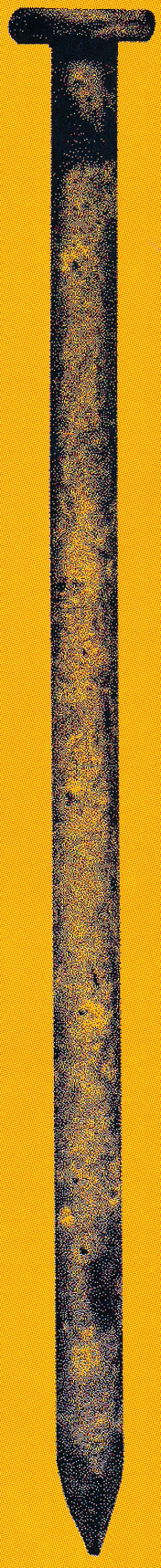
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INDUSTRIAL INTROSPECTION

An Interview with Trent Reznor of Nine Inch Nails



Trent Reznor, d.b.a. Nine Inch Nails, caused quite a stir in the music world with the release of his 1990 debut album Pretty Hate Machine. *A victim of "industrial" labeling, the album was scoffed at by die-hard industrialists as a genre heist, and hailed by the overall alternative music press as a solid example of new music for the Nineties. Trent is not ashamed of the fact that he makes pop music—why should he be?* Pretty Hate Machine *is pop dance music at its best—fast, fresh—even emotionally deep. Which is a lot more than can be said for most of the retro-psychedelic-house-rap-metal-syntho smarm that's being cranked out these days. His live show, with a full band, is another trip altogether. It's intense (almost hardcore) and unpredictable—music that gets in your face and under your skin.*

—Gareth Branwyn

Gareth Branwyn

Welcome to the Machine

MONDO 2000: How did you originally get involved in music, and specifically, the kind of industrial-influenced music that you do?
TRENT REZNOR: I grew up with lots of music and instruments around the house. I was trained on the piano starting at five. My dad was into electronic devices and had an electric piano. When I got my first synthesizer, though, my piano playing came to an abrupt halt. Synthesizers seemed so much more than an instrument. I was also very into computers, electronics and video—so it all seemed to fit. I got serious about writing music about the time that MIDIs and sequencers hit the scene. So, right from the start I was composing on computer and sequencer. I can't imagine composing on a guitar or a conventional instrument.

Building Pop Structures with Industrial Power Tools

TR: When I was in the process of writing *Pretty Hate Machine*, I took an inventory of all the music that I liked. I wanted to formulate an idea of what makes a powerful record. What it boiled down to was honesty—a sense of integrity in what was being said. I used that as a base in working with my ideas. Since I was a big fan of the American industrial movement—basically because it was electronic—it made sense for me to use this form. I had always been into electronic music, but I didn't feel it had much emotional intensity compared to rock 'n' roll. Then industrial came along. It was electronic, but it delivered as much power and intensity as any other musical form. It also represents the total misuse of technology, which really appealed to me. [*Laughter*]



Industrial represents the total misuse of technology, which really appealed to me

It looked cooler than I could've possibly imagined. It totally dripped all over his guitar, everywhere. The roadies are saying: [*deep, gruff voice*] "Fuck this! This isn't in my contract!"

The best hip-hop—the stuff produced by The Bomb Squad from Public Enemy, is a totally novel use of sampling. It's using it as an instrument, instead of a simulation of a drum, or a piano.

From a songwriting point of view, I like anybody who's writing good material. I think XTC is a great band and writes excellent songs.

M2: Hear, hear! [*Trent scores big points having just intoned the interviewer's* other *favorite band*]

TR: Their lyrics are so intelligent, with good choruses. I'm basically a pop structure kind of guy. In that sense, I'm not very experimental in terms of songwriting. A lot of industrial stuff is much more free-form. I like to have that hook and that structure.

In terms of arrangement, however, I'm much less traditional. I'm totally bored with guitar-bass-drums. I'm more into using different things—basically anything I can find that gets the sound I'm looking for. A lot of what I'm doing now may *sound* organic—it may sound like real drums, and at one time, it was—but they've been looped and sampled and processed in strange ways.

I cut and paste, plucking things off of other people's records—you become a kind of god of your own musical environment.

Cyborg Heart

M2: I want to go back to what you were saying about honesty being very important in music. I think that's what impressed me about *Pretty Hate Machine*. That raw sincerity really came through. Although the overall mood is dark and negative, there is a real beauty to it that I found uplifting. There's a real sense of heart, flesh, and blood amongst all the loud electronics. Are there other electronic musicians who you think have a lot of heart in their music?

TR: That's an interesting question. I was definitely aware of that in doing my album—that juxtaposition of humanity amidst all that machinery—not only lyrically or in terms of the arrangement, but just in terms of communicating that concept. Sometimes I would pit the harshest electronic textures against a particularly raw human vocal or a real guitar part.

I had a rule with myself during the recording that I would only do two takes of the vocals. I'd sing it once and it would usually suck, and then the second take I would use—good or bad. Even if the pitch or intonation was off. The only exception was if I sang the wrong words. I wanted to express a kind of vulnerability—the idea that I was a person trying to keep my head above water, living in this machine which was moving forward.

As for other bands, I like Ministry. They basically established industrial music in America. They put the anger and aggression element into electronic music. I mean, the first electronic music that I got into wasn't Throbbing Gristle. It was more like Human League and Devo. Then you had the people who developed electronic personalities because their music was electronic—Gary Numan, Kraftwerk—very emotionless.

Today, you have people who just want to follow the technology rather than innovate with it. The people who arrange Paula Abdul or Madonna—they just buy the gear, read the manual and make the sounds it tells them they can make. That's why all the dance club hits sound the same.

M2: Let's talk more about "the ghost in the machine." I'm interested in cybernetics—the sustainable relationship between humans and machines. I think there's a soulfulness and a dynamic on your first album which can only arise from a give-and-take relationship between humans and electronics. What other goals did you have for this first record?

TR: Basically to suck in a lot of people—get their attention. [*Laughter*] I had well-known producers—Adrian Sherwood (Cabaret Voltaire and Ministry), Flood (Nitzer Ebb, Depeche Mode), Keith LeBlanc (Tackhead), John Fryer (Cocteau Twins). That helped. I think a lot of people who bought the record were surprised that these people were involved with a project that was different than most stuff in the genre. Our live shows are very different from the records. I could have just gone out with tape machines or fifty keyboards and recreated the sound of the record. But I'm more interested in the challenge of having four musicians interpret what was initially composed by one person on a computer. That way I'm not bored, there's a lot of interaction, and it's a unique interpretation of my music. The record is me at home masturbating into a computer; the shows are me masturbating into an audience. [*Laughter*]

M2: [*Sarcastically*] Oh, what fun!

TR: Everybody bring your raincoat.

Whipped Cream & Other Delights

M2: I want to read you something about your show from an industrial music topic I started on a computer network. Since I've never seen you live, I asked if anyone had and what it was like. Here's what one women said:

"Hard to describe. Intense. Very intense. It lasted an hour but that was plenty. Lights. Volume. He threw cornstarch and chocolate

syrup on the band members and the audience. Many members of the audience stage-dove. The set was like a jungle gym and he clambered and wound himself around various parts of it. The songs all sound torturous, anyway, and he wrung them out of his body. I expected blood, really."

TR: [*Laughs*] Well, that's a flattering interpretation.

M2: What's with the cornstarch and chocolate syrup?

TR: When we started out and needed to get press photos taken, we knew we didn't want to pose like pretty boys. We got this photographer—Jeffrey Silverthorne from Ohio—who was doing pictures of people covered in cornstarch. They're photographed really high contrast so they look almost corpse-like. Most of his work is of nudes. There's something really disturbing about them. Eerie. So, as a result of working with him, I just came out with this box of cornstarch for our first show and doused everybody. We looked really creepy and stupid, but we seemed to pull it off. It looks great under the lights, grungy—a sort of anti-Bon Jovi thing. Towards the end of the tour, it started getting progressively more ridiculous: you know, "How can we outdo the night before?" We were breaking things on stage.

One night I was in a 7-11 before the show and I saw this big thing of chocolate syrup and I got an idea. During a certain point in the show, I always molest the guitar player in some fashion. I said to him "Rich, tonight I've got a surprise for you, don't worry, it'll be cool." He says, "What is it? You're going to make me look like an idiot and my brother's going to be there." This point in the show is when things lighten up a bit; there's a break from the violent intensity. I pulled out two things of chocolate syrup and started pouring them over his head. It looked cooler than I could've possibly imagined. It totally dripped all over his guitar, everywhere. The roadies are saying: [*deep, gruff voice*] "Fuck this! This isn't in my contract!"



So, of course, it had to go even farther. The next night, in LA, there was a wall of security guys in front of the stage so that I couldn't see the audience and the audience couldn't see me. At one point I stopped the show and said "What the fuck are you doing? Does anyone here wanna see these fuckin' guys?" At the end of the show, I found out that there was this big hump in the dance floor that they were trying to keep people from walking onto. So I apologized to them and we became good friends. The next night (at the same place) the security guys brought out ten heavy naked girls, and my road manager covered them with whipped cream. It was totally bizarre and silly.

M2: Where did the naked women come from?

TR: Apparently they were stripper friends of the security people. Did you see the *Hard Copy* interview with us? They did a story on us because of that whole video scandal. They ran this totally ridiculous story. I think they may have been there filming that night, but I don't think they got the part with the nude women. [*During the filming of NIN's video for "Down in It," the filmmakers tied a camera onto a helium balloon to film Trent lying on the ground covered with cornstarch. The balloon camera got away and ended up landing in a farmer's field. People thought they had found a tape showing some sort of ritual murder and all media hell broke loose.*

Blood & Chocolate

M2: Speaking of extremes, how extreme are you willing to get in your quest for release? That comment above, "I expected blood. Really." Are you going to continue to raise the stakes?

TR: When I'm on stage something else takes over and I do things that I know I shouldn't do. Not in terms of hurting myself or anyone, but smashing things. I mean, I'm not interested in slicing myself open like Iggy Pop, if that's what you're asking.

M2: Well, I was just reading an interview with Al Jourgensen (Ministry) and Nivek Ogre (Skinny Puppy) and they were talking about bloodletting on stage.

TR: [*Laughs*] What!? I hadn't heard that. What does the audience do—wear rubber gloves and stuff to protect themselves?

M2: Oh, that's right. It better be *safe* bloodletting. The entire audience dressed in rubber and PVC. [*Laughter*] M2

The security guards brought out ten heavy naked girls, and my road manager covered them with whipped cream

The record is me at home masturbating into a computer; the shows are me masturbating into an audience



Glenn Branca and Elliott Sharp:

"We are the Reality *of this* Cyberpunk Fantasy"



In Conversation with Mark Dery

Photos/Illustrations by Jill Greenberg

Glenn Branca and Elliott Sharp philosophize with a hammer. And an anvil. And a stirrup. The two New York composers take Friedrich Nietzsche, who subtitled an essay "How One Philosophizes With a Hammer," a step further. They make music that jangles the bones of the inner ear and bruises the brain.

Branca, 42, is a Promethean presence in new music. Emerging from Manhattan's no wave scene in the late seventies, he smashed the world to flinders with a single, craggy, monolithic chord—a cluster of E notes, to be exact, the thunderclap that opens 1979's "The Spectacular Commodity" (The Ascension, 99 Records). Then, he made it new. Scored for massed electric guitars amplified past the threshold of aural pain, "Symphony No. 1: Tonal Plexus" (ROIR) welded the harmonics and heterodyning effects of minimalism's "acoustic phenomena" school to Beethoven's stormy bluster, Steve Reich's static harmonies, and the careening, locomotive fury of heavy metal.

"Symphony No. 3: Gloria—Music For the First 127 Intervals of the Harmonic Series" (Neutral) called for non-tempered tunings based on the harmonic series, the naturally-occurring, endlessly-ascending row of pitches that are multiples of a fundamental frequency. "Within this internal mechanism exists a body of music," Branca observed in his program notes, "music which has not been written, but which is inherently indicated, in much the same way that DNA contains information." In "Symphony No. 5: Describing Planes of an Expanding Hypersphere" and subsequent works, Branca used the harmonic series to conjure otherworldly effects—an ethereal, crystalline whistling reminiscent of the glass harmonica, sonic Spirograph patterns traced in the air by spiralling melody lines.

In his seventh and most recent symphony, Branca embraces equal temperament and conventional orchestral instrumentation. Polymetric, polymorphous, and perverse—there are no melodic themes to speak of, only ascending harmonies—"Symphony No. 7" suggests Reich's "Desert Music" in its chattering mallet instruments and attaca movement, Anton Bruckner in its almost palpable air of mystery, of awe in the prescence of something that withers words like dry husks.

Although he is not the Brucknerian mystic Branca is, Sharp shares his fellow composer's obsession with raw power. In music of unutterable strangeness and mutant beauty, the 40-year-old composer/multi-instrumentalist summons visions of thermonuclear fireballs and self-squared dragons, black holes and information whiteout. On Sili/contemp/tation (Ear-Rational), Monster Curve (SST), and other Sharp releases, one hears echoes of innumerable influences—gutbucket blues, Inuit throat-singing, Jimi Hendrix, Krzysztof Penderecki, the harmonic chanting of Tibetan monks, chaos theory, and fractal geometry—scrunched into a single skull and subjected to explosive decompression.

All of which might suggest that Sharp's art is a cross between the neural spin art of a theoretical physicist at mid-orgasm and the climax of the movie Altered States, where the protagonist devolves into Silly Putty. Nothing could be further from the truth. Sharp, like Branca, is a hyperintellectual who frequently makes use of mathematical equations in his work. He has explored the farflung reaches of the harmonic series and has written works in just intonation, the microtonal tuning system favored by Harry Partch. Moreover, his compositional architecture, tuning systems, and rhythms are often generated using the Fibonacci series, mathematical ratios derived by summing a number and its precedent—0, 1, 1, 2, 3, 5, 8, 13, and so forth.

"The music," informs Sharp in his liner notes to Larynx (SST), "dances upon the ever-changing boundary between a geometry derived from the Fibonacci series and a fractal geometry of turbulence, chaos and disorder."

Fortuitously, both will have new recordings in the racks. One of Branca's older works, "Symphony No. 2," is being released by the Chicago-based indie, Atavistic. Subtitled "The Peak of the Sacred," it relies on homebuilt "staircase guitars"—lap steel/hammer dulcimer hybrids arranged in tiers, their open strings played with chop sticks—to produce an eerie, lambent rainbow of sound, the aural equivalent of Northern Lights. The second half of "Symphony No. 2" spotlights Z'ev, a Mad Max Roach of sorts who plays springs, pipes, titanium sheets, and strips of cold-rolled steel.

Sharp's September offerings consist of Datacide and Twistmap (Enemy/Indie and Ear-Rational, respectively, the latter available from Ear-Relevant, 547 W. 20th Street, 3rd Floor, New York, NY 10011). Datacide, which showcases the guitarist's quartet, Carbon, is forty-nine minutes of neurocore—clotted, convulsive songs that are equal parts dark matter and gray matter. Twistmap features the title track and "Shapeshifters," two astringent pieces for strings interpreted by the Soldier String Quartet, and "Ferrous," a rambunctious instrumental performed by Carbon on instruments designed and built by Sharp. Among them are the pantar, an electric string instrument whose angry buzz Sharp describes as "a cross between a tamboura and a dumpster," and the slab, an unlovely creation fashioned from a hunk of butcher block fitted with bass strings and pickups. Drummed with metal rods, the slab produces a raspy bumbling suggestive of iron bees with rusty wings.

Branca and Sharp share an abiding interest in science fiction. Branca, an obsessive cyberphile, runs JAA Press, a mail-order distributor of cyberpunk books and related ephemera. His catalog (available from Prince Street Station, P.O. Box 96, New York, NY 10012) includes many of the titles mentioned in this interview. Sharp's song and record titles chronicle a lifelong fixation: "Kipple" and "PKD" allude to Philip K. Dick, "Cenobite" to Clive Barker's splatterpunk movie, Hellraiser, and "Dr. Adder" to the Jeter novel of the same name.

Astonishingly, the two composers had never met, a fact that defies the laws of probability given their parallel courses and the close confines of New York's downtown music scene. Little remained but for MONDO 2000 to introduce the two kindred composers. A meeting was arranged in upstate New York, where both were summering—Branca graciously played host at the 200-year-old cottage on the campus of Bard College, at Annandale-on-Hudson.

It was a supercollision. Both composers are tenacious, highly-opinionated conversationalists who seem to thrive on the thrust and parry of spirited repartee. Neither gives ground willingly. And they make an arresting pair: Branca is a blowzy, Byronesque sort whose tousled mane, rumpled suitcoats and unbuttoned, flapping greatcoats make him look as if he lives in a wind tunnel; Sharp sports a shaven pate and a military-industrial wardrobe that runs the gamut from black to black. Branca often wears his shirt collars turned up, giving him a decidedly 18th century appearance, as if he had just stepped from the pages of Goethe's Sorrows of Young Werther. Sharp, with his leather overcoat, Kojak fedora and black combat boots, would go unnoticed in one of William Gibson's Chiba City bars. Each tends toward the serious and, when photographed, fixes a basilisk gaze on the camera, staring it down. At the same time, each possesses a vinegary wit and a laugh well worth waiting for—in Sharp's case, a dry chuckle and in Branca's a Burroughsian snigger that suggests the sound of a hacksaw being drawn across jailhouse bars. Between flaming bites of shrimp-and-jalapeño shishkabob, with hasty gulps of fumé blanc to put out the fire, an experiment in superconductivity was conducted.

—Mark Dery

MONDO 2000: Glenn, your piece "Freeform" is dedicated to Rudolph von Bitter Rucker. It's a shimmering, pastel work for orchestra, driven by vibraphones and glockenspiels—not exactly the soundtrack I hear in my head when I'm reading Rucker's novels!

GLENN BRANCA: Well, I had already named the piece "Freeform" when I discovered that Rucker had founded the "freestyle" movement in science fiction. Since I love everything that Rucker writes, it was a happy coincidence. Beyond that, however, there isn't the slightest connection between my music and my interest in cyberpunk writing. I came to cyberpunk through the mathematical ideas I was exploring in my composing. I was looking for books on mathematics and one of the books I discovered was Rucker's *Infinity and the Mind*. The bibliography included a list of the other titles he'd written and since I hadn't read any science fiction at all, I thought it would be a goof to see what it was like. So I read his novel, *Master of Space and Time*, which I loved.

M2: Relatively speaking, you've come to science fiction late, whereas Elliott has been a lifelong sci-fi buff.

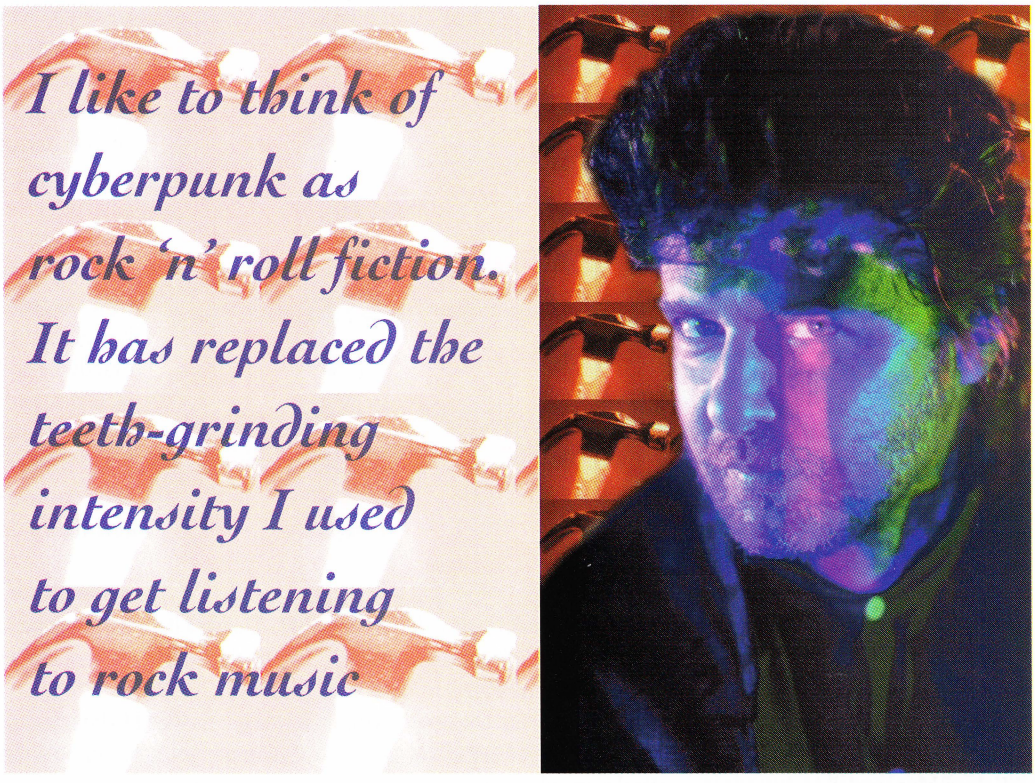
ELLIOTT SHARP: I was a science nerd. I started reading sci-fi the first time I went to the library. Ray Bradbury was an early find. He definitely did not hew to the idiot techno-fascist school of sci-fi. That was the thing about Robert Heinlein, Isaac Asimov, and most of those older writers. They were so jingoistic, taking their xenophobia to outer space.

GB: Did you read Philip K. Dick when you were young?

ES: Definitely. His stories always stuck in my mind, especially "The Father Thing," where this kid's father has been taken over by an alien and the kid has to kill it before the Mother Thing is released. Don't you remember feeling, when you were a teenager, that your family was a collection of aliens? [*Laughter*]

M2: Dick, for all his darkness, was a true Groucho Marxist. Rucker has that same quality, especially in *Master of Space and Time*, which is wonderfully sophomoric—quantum mechanics for people who like to squeeze off armpit farts.

GB: Rucker's writing is cartoony but very fluid. You see, I wasn't reading fiction at all when I got into Rudy Rucker. The fact is, I don't like fiction! Only cyberpunk actually deals with contemporary culture in a way that I can relate to. I like to think of it as rock 'n' roll fiction. It has replaced the teeth-grinding intensity I used to get listening to rock music.



ES: Cyberpunk is actually the only political literature being written these days, and it's always sympathetic to marginalized subcultures. It comes from the underdog's perspective. If there's one recurrent theme in cyberpunk, it's this idea of taking technology out of the hands of the techno-fascists, of networking on unofficial levels.

M2: But it still has the technofetishism of the old wiring-diagram school of science fiction. One closes these books feeling that body armor and laser Uzis are really sexy. Tomorrow's technology *is* the soft machine—small and sexy and internalized, nanomachines and biomechanic implants.

ES: Right, but you can't separate the hardware from the software. You'll always have techno-fetishism of one sort or another.

GB: I think that some of the writers are trying to move away from the techno aspects of the genre, but what's left ends up being something like Lewis Shiner's *Slam*, which is not cyberpunk or even science fiction. Although I would like to see a few more plot problems solved with something other than a laser gun, the real-world application of these ideas doesn't really interest me. I like the fiction, and that's where I think cyberpunk lives.

JAMES JOYCE, PROTO-CYBERPUNK

M2: Who do you two feel are the proto-cyberpunks in literary history? For my money, there are four authors—all of them outside the science fiction continuum, strictly speaking—who blazed the trail for cyberpunk: William S. Burroughs, Thomas Pynchon, J.G. Ballard, and more recently, Don DeLillo.

GB: Burroughs and Pynchon, certainly, but I would have added Norman Spinrad and Dick.

ES: Burroughs and Pynchon, absolutely, and I would really have to add Joyce to that list.

GB: *James Joyce was a proto-cyberpunk*?!

M2: That's legitimate!

GB: It isn't even *slightly* legitimate!

ES: Yes, for his consciousness! The brain became a different organ in *Finnegan's Wake*.

GB: Oh, all right. You could probably convince me. Cyberpunk *may* catch up with *Finnegan's Wake* by the year 2095, but none of these writers are doing anything remotely like Joyce's novels, and I hope they

never do. I don't need any more Russolo or Duchamp or Cage, although I have heard that Paul Di Filippo's new book, *Ciphers*, is his *Gravity's Rainbow* and it'll probably be *great*.

But I don't think experimental fiction is really the right direction for cyberpunk. That's what happened to the English new wave in the sixties. Cyberpunk brought back the energy of new wave in much the same way that punk music brought back the essential energy of sixties rock. There were a few people, like Charles Platt, Mick Farren, Jeter, and Spinrad, who continued to define near-future dystopian chaos right through the seventies, and I'm sure Sterling and Shirley were aware of them.

M2: So the trail of the first cyberpunk novel leads all the way back to Harlan Ellison and Michael Moorcock?

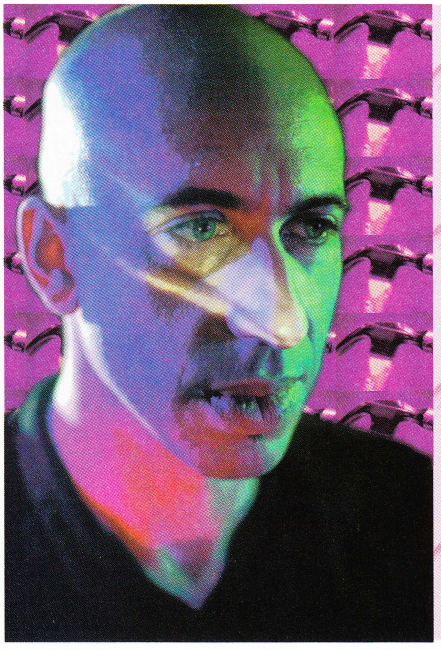
ES: Further than that, to Aldous Huxley's *Brave New World* and Fritz Lang's *Metropolis*.

GB: To me, though, the person who has the key to this kind of writing is Burroughs. You can go back and re-read Burroughs and even though you understand his world, it's always a mystery.

ES: I get a buzz from *Naked Lunch* that I don't get from most of his other books, although I love them all.

GB: Really? I think the later books are better—*The Wild Boys, The Soft Machine, Nova Express*. And *Interzone*! If you read that last story—the one that wasn't included in *Naked Lunch*—that is Burroughs to the fucking 10th power! See, my hope is that cyberpunk is going to end up simply becoming Burroughs. I'm just looking for more Burroughs! To go beyond Burroughs…I can't even begin to imagine!

ES: Isn't that what we're really looking forward to—the book that we can't imagine? I keep wondering when a work of art will come along that will introduce me to a new way of thinking.



In the real world, one never really finds an ideal fractal. One finds fractal situations—things that can be analyzed down to fractals

SLAMMING THE CYBERPUNKS

GB: There have been all these attacks on cyberpunk writing in the last year or two, among them that Lewis Shiner essay in *The New York Times*, saying the genre is dead. At the same time, there's an amazing scene happening in England, revolving around a group of young cyberpunk writers, most of whom are published in *Interzone*—people like Charles Stross, who calls his work "technogoth," and Lyle Hopwood, a female writer who recently moved to the States, and Glenn Grant, a young Canadian who publishes a Montreal-based fiction magazine called *Edge Detector*.

And then there's *Alligator Alley*, which is supposedly a collaboration between Jeter and a cartoonist named Ferret, under the pseudonyms Dr. Adder and Mink Mole. [*Actually written by Tim Ferret—ed.*] If cyberpunk is going to lead somewhere that isn't cyberpunk, this is one direction it could take. The book is…*sick*. It sounds as if it had been written by an incredibly talented underground writer, somebody like Bart Plantenga, the Beer Mystic, who used to appear in the newsletter published by WFMU radio and who has spent time on the 'zine scene. Plantenga wrote one completely wild story about a guy driving around the city, crashing into everything. *Alligator Alley* is strikingly similar—hardcore misanthropy, pushed to unbelievably absurd extremes. The book takes place on a strip called Alligator Alley in Florida, which apparently actually exists. It's a stretch of road where alligators and other animals are constantly being run over. The main characters spend almost the entire narrative on this one thoroughfare.

M2: Do they run over any alligators?

GB: Oh, they run over everything you can possibly imagine—endlessly! The book has that repetitive, Burroughsian quality about it. "Roadkill" is the last word you'll ever want to hear after you finish it.

The second half of *Alligator Alley* begins with an infodump in which the authors avalanche about five books' worth of plot material onto you in about a chapter and a half, after which they continue with the narrative on a totally different level. The book is amazingly dense and that's just what I want!

I want to be blown away on every page! I don't care where the narrative is going—just get me off *right now*, in this sentence! Of course, the book has to *keep* giving it to me, and for the first 150 pages, that's exactly what *Alligator Alley* does.

M2: It sounds like Mark Leyner's *My Cousin, My Gastroenterologist*, which, for me, is like a cut-up novel for the blipvert generation.

ES: That was one of the most hilarious books I've ever read.

AUPRES DE MOI LE DATA-DELUGE!

M2: Doesn't it strike you as odd that, while our culture is drowning in this data deluge, we as individuals seem to thrive on information overload?

ES: Well, the need to be constantly stimulated is modern life, but it's also human. A nerve impulse has its effect for only so long before the infocaine wears off.

GB: What's vital about cyberpunk, to my mind, is this idea of the underground network. I mean, most of the interesting cyberpunk stuff deals with the alternative network—hackers and artists and musicians, renegades who are living outside of consensus reality. For me, the best extrapolations from this culture have been Peter Lamborn Wilson's pirate nation-state, Port Watson, in the short piece of the same name; Glenn Grant's techno-nomads in his story "Mimetic Drift;" Misha's dystopian art world in *Red Spider, White Web*; and Pat Murphy's city of artists in *The City, Not Long After*.

This anti-society already exists all over the country, not just in the urban centers. Again, the cyberpunk novelists are doing exactly what the new wave writers were doing in the sixties. The difference is, the culture has become so much more sophisticated than it was then.

M2: The silicon underground has become a reality.

ES: Right. And bearing in mind where you and I hook into all of this, I have to ask: Why hasn't music kept pace with these developments?

GB: Oh, but it has!

ES: I don't know about that. If you look at pop music, what do you have? College rock!

GB: But *we*, Elliott, are the reality of this cyberpunk fantasy, I'm sorry to say. [*Laughter*] To be honest, though, I don't think I've ever heard a musical analog for cyberpunk literature.

ES: Well, that's just it! You hear something and say, "Do I make the connection because I've been told it exists or do I make the connection because it's actually there?" For example, Sonic Youth called themselves "cyberpunk" at one point, but if you listened to a Sonic Youth record without knowing that, would you say, "Oh, these guys are clearly cyberpunks?"

GB: The closest I've come to cyberpunk music is Dane Rudhyar's description of music that he would have loved to have heard. It was in *The Magic of Tone and the Art of Music*, where he imagines a techno-mystical hyper-instrument called the Cosmophonon. He describes it as a field of energy forces which is "played" by touching various colored crystals. The music is all-encompassing for the player and the listener—capable of invoking true synaesthesia.

A LITTLE PO-APOC NIGHT MUSIC

ES: Did you ever read *Memories of Whiteness*, by Kim Stanley Robinson? It's about this human colony in the future, where the language is based on musical analogies and musical terms. It's a little bit corny, a little New Agey, but it has its moments.

There's also a story by Cordwainer Smith called "Under Old Earth" which revolves around music and the rebel underground. Although Smith wrote in the fifties, he was really pretty visionary. This story takes place in a post-apocalypse, post-history New York and features an underground culture of subversives that has rituals where they play Einsturzende Neubaten-type music, banging on metal in odd meters, all fives and sevens.

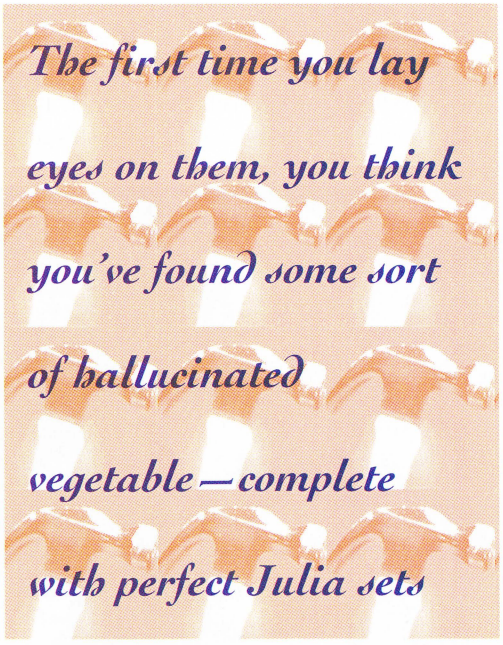
M2: There's another treatment of cyber-rock, in John Shirley's "Freezone," in *Mirrorshades*.

GB: That's an excerpt from his novel *Eclipse*, in which the main character is a musician named Rickenharp. Shirley does music, you know. He sings with the guitarist Michael Chocholak, the husband of Misha, who happens to be a great cyberpunk writer. He made soundtracks for *Alligator Alley* and *Red Spider, White Web*, and if you buy the special editions from the English publisher, Morrigan, Chocholak's cassette tapes come with the book.

Shirley has made, at this point, about an album's worth of songs with Chocholak. I've heard some of them and they're fantastic! Shirley is still coming from a sixties orientation, a Jim Morrison kind of thing, but if you like Shirley's writing and you know Rickenharp, you'll like the music, because it really *is* the soundtrack that goes with his books. Strangely enough, the music, although somewhat anachronistic, is appropriate. I mean, what *is* the proper modern music to accompany cyberpunk?

ES: Exactly.

GB: I mean, is it some futuristic-sounding electronic beep-boop music or what? Lucius Shepard, who is very, very into music—I think he used to have a band, although I don't believe he makes music now—has written a "recommended" list. Hypno Love Wheel was on it, as well as Gaye Bikers on Acid. And then there's fractal music, which I haven't heard a note of. Richard Kadrey is calling his new book *Kamikaze L'Amour: A Rock 'n' Roll Novel*—maybe he'll give us some idea of what this stuff should sound like.



EAT YOUR FRACTALS, GEORGE

ES: There's a guy at Princeton who did some fractal music. It's the musical illusion of a never-ending cycle, descending and then ascending, over and over again, a musical perpetual motion machine. It's not a bad aural analogy for a Mandlebrot set, but it completely avoids the whole issue.

For me, fractals are an analogy to a natural form and function, whereas fractal music is an impression of an analogy of natural phenomena. A mathematical equation can only offer an abstraction, an idealized picture of this natural form and function. Fractals don't depict things as they really are. They merely define the laws whereby you can make an analogy.

GB: You can make a piece of music that's as interesting as a fractal. The problem is, a fractal is nowhere near as interesting as a beautiful landscape. Cellular automata, for instance, are about as sophisticated as ant farms. It's going to take a long time for mathematics to find a true analog for macro-scale natural processes.

ES: That's the problem. It always comes down to mathematics, which deals in curves, whereas nature always comes down to discrete moments. So, one never really finds an ideal fractal. One finds fractal *situations*—things that can be analyzed down to fractals.

GB: Because of their self-similarities.

ES: Yeah. Have you ever seen a Broccoli Romanescu?

GB: *What the hell is a Broccoli Romanescu?!?*

ES: I was in Seattle, going through the outdoor market, and I ran into a hippie farmer with this pile of large, round, green things that turned out to be a type of broccoli that is completely self-similar. It's right out of Mandlebrot's book! The first time you lay eyes on them, you think you've found some sort of hallucinatory vegetable, or hallucinated vegetable. And if you slice them in quarters, they yield perfect Julia sets, these self-similar curves. A little bland-tasting, sadly. [*Laughter*]

CHAOS: NOT JUST A GOOD IDEA...

GB: But I don't think we have to have an actual, real-life analog for cyberpunk fiction. What's great about it is that we can only live in it in the writing itself.

ES: Well, if we had implants, we could just go direct—brain to CD.

GB: Sure, and it would probably sound like a fucking mess! [*Laughter*]

ES: Well, maybe. The brain isn't delineated into these neat little sections, contrary to pop psych right brain/left brain models. It's a very large-scale integrative system. There's order, there's chaos, there's intuition, and there's formality, all operating simultaneously.

M2: Speaking of chaos, does chaos theory resonate with either of your musics?

ES: My music was always about that even before I knew about chaos theory because I always liked the idea of that borderline where things get... funny.

GB: James Gleick's book, *Chaos*, only gave you the surface while deluding you into thinking that you could understand this stuff. The reason I liked *Infinity and the Mind* was that it actually led me into higher mathematics, to places I had never gone, especially transcendental numbers.

ES: *Does God Play Dice?: The Mathematics of Chaos*, by Ian Stewart, contains a better description of chaos than the Gleick book. He quotes Gleick in some places, but he digs far deeper.

DOWN THE BRAIN-DRAIN, OR COGITO ERGO SUMP

GB: And the deeper you get into this stuff, the more you realize you have to be deeply into it to have even the *slightest* idea of what's going on. If there's ever an analog for the human brain, it will require a computer that works at light speed, at the very least.

ES: Because the brain is not a digital machine. I'm reading *Surely You're Joking, Mr. Feynmann*. He would look at a problem and rather than getting down to any equations, he would imagine models in the real world, going right to whether or not something made sense intuitively. So if you think about the brain and how it works, and then you think about the nature of digital processing and what we know about how we think, it seems unlikely that thought processes can be reduced to a series of on/offs no matter *how* many connections you have, or *how* fast they are.

M2: Cognition is non-binary and non-linear—the great revelation people come to after scouring their brainpans with blotter acid.

ES: Exactly, and it's also why the hard AI guys are barking up the wrong tree. The techno-geeks can't even figure out what "I" is.

I think we're coming to the end of a cycle, the end of our type of consciousness. An analogy would be a Gödelian process of manipulating unimaginably large numbers, numbers which are really processes themselves, but manipulating them as if they're discrete entities. Once you bump your point of view up to another scale, you can see the forest and the trees, and you become aware of the syntax of these processes and their interaction. They become graspable, usable baby blocks and things like AI become easy (although the phrase AI itself would probably have to be redefined). We've reached a conceptual barrier. It's time for a quantum leap.

GB: It's going to be a hell of a leap. M2

Elliott Sharp's recommended records for chaos cultists:

1. *HPSCHD* (Nonesuch, out-of-print), **John Cage and Lejaren Hiller**. "Computer-human interface overload"

2. *Consumer Revolt* (Circuit Records P.O. Box 67 Merrick NY 11566) **Cop Shoot Cop**. "Dark, brutal techno-primitivism"

3. *On the Corner* (Columbia, out-of-print), **Miles Davis**. "Manic electronics and bloop-bleep rhythms take their rightful place in a funky mix"

4. *Dark Market Broadcast* (Staaltape c/o the Ooze P.O. Box 83296 Portland OR 97283), **John Duncan**. "Shortwave radios and media samples—post-apocalyptic easy listening"

5. *Hit* (These, distributed by Recommended Records 367 Wandsworth, London SW8 2JL England), **Fat**. "Fat is a power trio that plays neurocore—kinetic, jagged and metallic"

6. *Maggot Brain* (Westbound), **Funkadelic**. "Mind-burning techno-psychedelia—brain booty"

7. *Brian Jones Presents the Pipes of Pan at Jajouka* (Rolling Stones Records), **Various Artists**. "Cross-cultural neural networking—a blend of ancient and future"



8. *Good as Gold* (Homestead), **Owt**. "Urban grooves—an interface of human digits and digital technologies"

9. *Electroacoustic Music* (Nonesuch, out-of-print), **Iannis Xenakis**. "The total liberation of sound, using what was at that time state-of-the-art computer and art processing, as well as sound sources that included simple effects such as burning charcoal—one of the most extreme records of all time"

10. *Riga* (Points East, distributed by Recommended Records), **Riga**. "They're a percussion band from Riga, in Latvia, who play scrap metal amplified with contact mics, taking the low-tech/high-tech amalgam to its ultimate—their alienation is complete"

Asked to choose his 10 favorite cyberpunk novels, Glenn Branca couldn't resist cheating. Here is his list of neuromantic titles:

Neuromancer, Burning Chrome, by **William Gibson**.
Schismatrix, Crystal Express, by **Bruce Sterling**.
Software, Wetware, by **Rudy Rucker**.
Dr. Adder, by **K.W. Jeter**.
Eclipse Trilogy, by **John Shirley**.
Alligator Alley, by Mink Mole and Dr. Adder (the pen name(s) of underground cartoonist **Tim Ferret.**)
Metrophage, by **Richard Kadrey**.
Temporary Autonomous Zone, by **Hakim Bey**.
The Silicon Man, by **Charles Platt**.
Red Spider, White Web, by **Misha**.
Ambient, by **Jack Womack**.

Meet the RESIDENTS?

THOSE CRYPTIC GUYS AT THE CORPORATION



Henrik Kam

We may no longer condone the exhibition of human oddities, but freaks still get stared at. The only difference is they no longer get paid for it.

Is our modern enlightened attitude really an improvement on the old travelling freak shows? The Residents, whose interests lie purely in the Romantic re-creation of uneasy feelings of more innocent times, believe such questions are best left in the hands of sociologists and philosophers. So turn down your lights, put on your headphones and go to the "Freak Show!"

Voice of Resident: "Life is a lot like a freak show, 'cause nobody laughs when they leave."

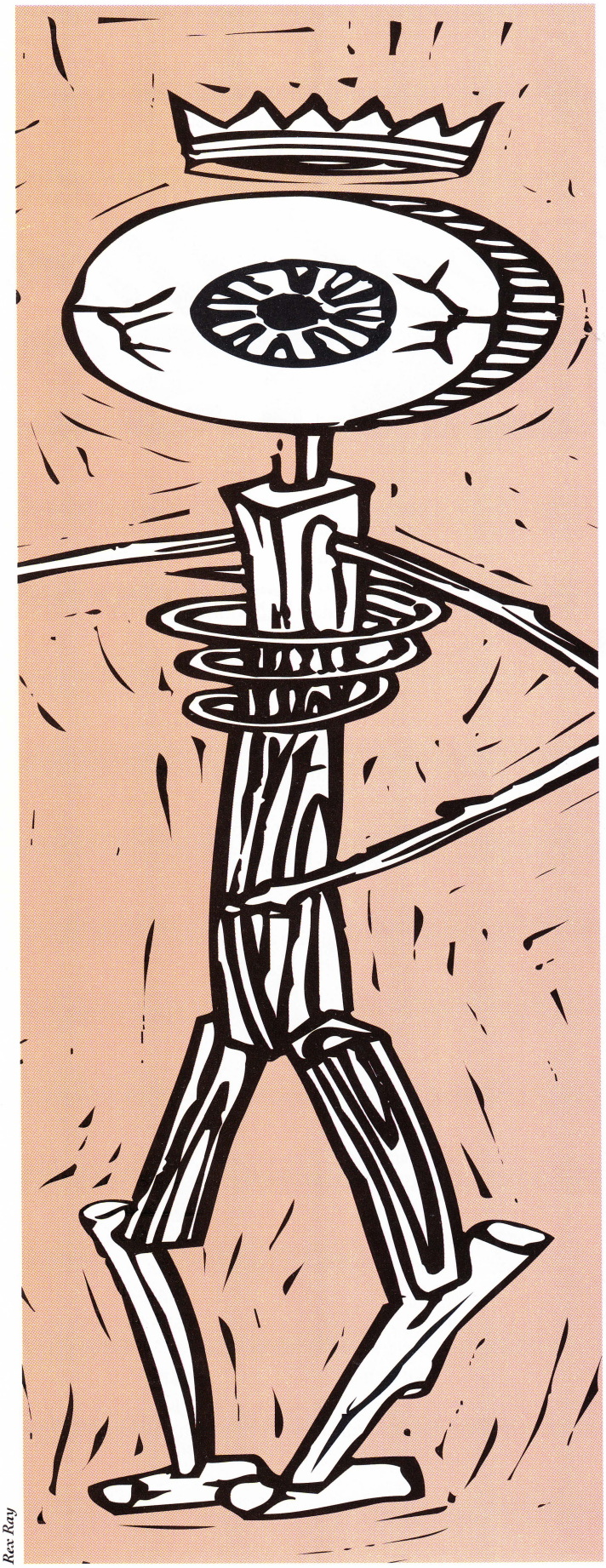
—From *Freak Show* Video Press Release

Stephen Ronan with St. Jude

Here they were at last, the guys from Cryptic Corp. They look like such human beings—*a little shaggy, relaxed, they have the look of hard-core working artists. No goth-black pleaty crap. Their voices meander in the fluty, tranquil rhythms of Louisiana. Hardy Fox—the subtly accented baritone, Homer Flynn—the back-country bass. Both… uh, thrillingly familiar.*

The guys from Cryptic thought they were invited for dinner. We didn't know this. Things turned immediately strange. The rest of the staff disappeared and two hot-eyed fans closed in on them with tape recorders. They dined only on strange brews—foreign ales, chosen at random by me, a non-drinker. Car-less and wholly at our mercy, they were debriefed far into the night. The living room of the MONDO *house made for an ideal indoor Torture Garden, Addams family style—toad and spider effigies, velvet puff parlour retrostuff in murky shadows. The guys bore up nicely. Many tales from the Cryptics. They are, of course, practicing surrealists.*

—St. Jude



Rex Ray

IDEAS OF REFERENCE, AND OTHER ABERRATIONS

MONDO 2000: Can we talk about roots?

HOMER FLYNN [HOM]: In terms of the rules as the Residents put them to us, they don't really allow much roots kind of stuff.

HARDY FOX [HAR]: The attitude is that they're a group. That's what counts. Anything before that doesn't matter.

M2: I was thinking the Residents were autochthonous, which means to be self-invented—not from any recognizable musical roots.

HOM: *They had 'em.*

M2: They seem more inspired by radical art concepts than by the music of the 20th century.

HOM: I'd say that's a fairly accurate statement.

M2: The Residents personify "pop simulacra," where the image presented is entirely manufactured—from the Archies right up to Milli Vanilli. Do the Residents see themselves as part of that continuum?

HOM: They're very proud to be part of it.

HAR: If there were no Monkees there would be no Residents.

M2: When I mentioned roots to St. Jude, she came up with William Butler Yeats...

St.J: "Here I Come Constantinople" and "Sailing to Byzantium"—did the Residents have that in mind?

HOM: No.

M2: Byzantium was the heaven where art was stylized and formal...

St.J: "Gather me/into the artifice of eternity."

HOM: It does sound apropos. They're coming from the same place, but there is no direct reflection of the one in the other.

M2: "Here I Come Constantinople" says, "all my friends will be there," that sense of an immortal place or...

HAR: Yeah, I think Constantinople is sort of heaven.

M2: There's a definite spookiness to a lot of the Residents' music.

HAR: The Residents' concept is that real life has a lot of different things to it, including things that are scary.

FEELING DISTINCTLY UNGROOVY

M2: "The Laughing Song" is not "Feelin' Groovy."

HOM: There is a sardonic edge to that laughter.

HAR: But the lyrics are silly, a nursery rhyme.

St.J: The Residents are the Brothers Grimm of pop music.

HOM: That's pretty accurate. Although, the Brothers Grimm didn't write the stories. They collected them. They were archivists.

St.J: The Residents' music has that Grimm feeling to it, as if you were sucking things up direct from that primordial...

HOM: Once again, the Residents are not without influences. The reason they're not recognizable is that the Residents weren't capable of rendering them that faithfully.

HAR: I always tell people that the whole success of the Residents is based on the fact that they're tone deaf.

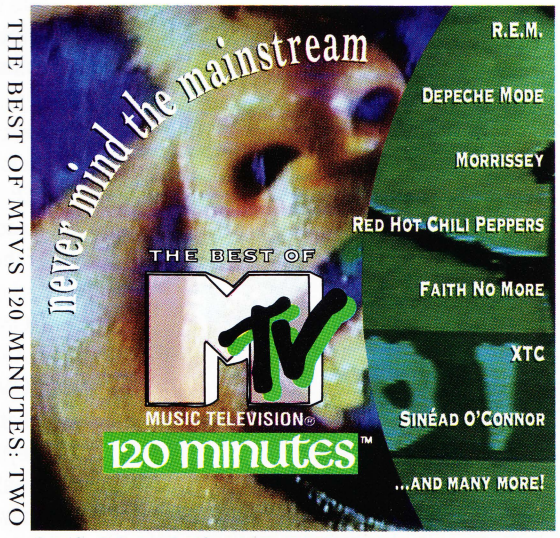
M2: Is there a "Residents sound?"

HOM: The intention was very conscious *not* to have a sound—to reinvent the sound with every new project. Any lack of success in doing that was because they weren't *capable* of reinventing it each time.

HAR: There *is* a sound in the sense that you can say something "sounds like the Residents." But it would be very hard to pinpoint what the mechanics of that sound are.

HOM: Yeah, it's definitely an ear-of-the-behearer kind of thing. I've had people point out things that they thought were influenced by—or exactly like—the Residents, and I thought they were nuts. Even if the

Here, where the road bends sharply to the left,



-is where we lose most of the tourists.

RHINO

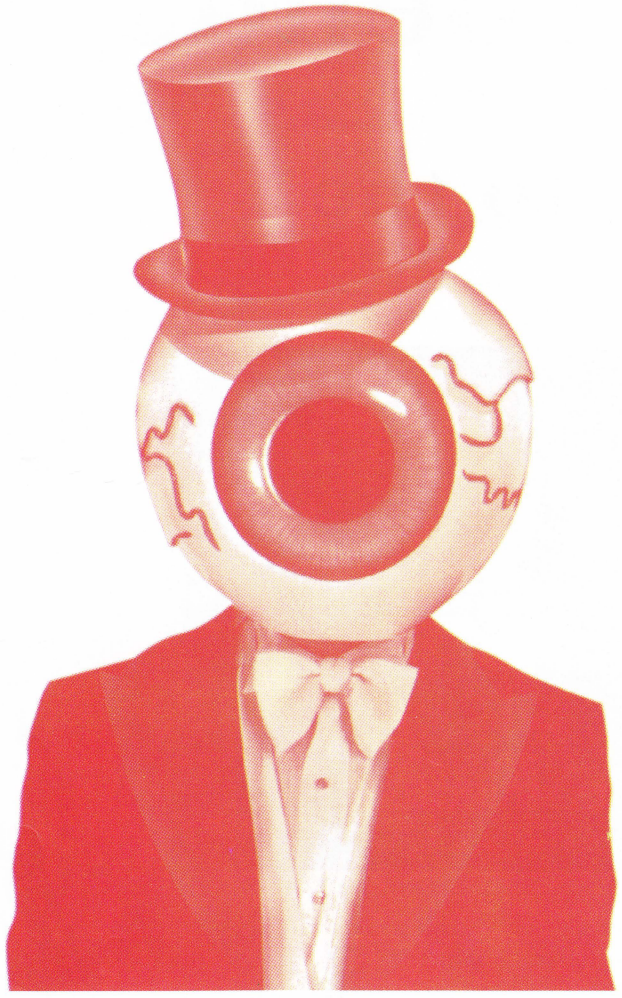
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Residents had supplied visuals to everything, a lot of it would have been as ambiguous as the lyrics.

I always enjoyed people who didn't read the *Eskimo* lyrics at all but created their own stories to go along with it. My ex-wife used to put speakers in the windows on Halloween and play *Eskimo* to the kids in the street—a very valid use, but nothing to do with the *Eskimo* stories.

"Teddy Bear" is fluff, but there's a whole under-current of S&M



AND NOW, DANGEROUS MUSIC...

M2: Heading back to the notion of artifice, the Residents came along in the early Seventies when there was a reaction to the artificiality of the psychedelic era—it was all "natural"—acoustic singer-songwriters. Then we met the Residents saying they were going to be as artificial as they want to be.

HAR: The Residents sprang more from the fact that Psychedelia dead-ended. The people who were doing experiments in that direction stopped when they had barely scratched the surface.

M2: There were stories about the Residents having a warehouse where the dangerous music types gathered to get acid-drenched. Any comment on LSD as influence?

HOM: In their formative years they were drawn to this area because that's what was happening in the late Sixties. They had their share of those experiences. Though, to my knowledge, they haven't had any drug experiences since the mid-Seventies.

M2: Would that mystery and enigma of the early Residents be attributable to the psychedelic experience?

HOM: Certain attitudes were created that way.

HAR: There were attitudes even *before*. There were concepts that show business *itself* is mythological. That if you were going to be in show business, you should *be in show business* and be as colorful as possible.

M2: I was going to ask if the Residents considered themselves part of "the Biz."

HOM: Yeah, the Residents are definitely Show Biz. No question about it.

HAR: Always were. In their heads, if not in reality.

M2: Wasn't it more like conceptual art? On the *American Composers* sleeve, the Residents are described as "pseudo-artists working in music."

HOM: I recently re-read that and I don't agree with it.

HAR: You go back over the years and re-read things, and it's like you've never even *seen* them before. A lot of things are written just to be colorful.

THE MOTHERSHIP! THE MOTHERSHIP!

M2: My next question is, and I mean it in the most positive sense of the term, were the Residents an "art school band?"

HOM: I think so, but...

HAR: ... but there was no school.

HOM: Right. They were just doing what was interesting to them and they found art, and particularly avant-garde art, *very* interesting. They liked things that were weird and experimental. I don't know that any of them were that knowledgeable, that they studied anybody in particular.

HAR: It's fun-based more than anything. You can't really think about it—you play with it.

HOM: Musically, Captain Beefheart was an early influence. It was obvious to them that he was taking John Coltrane and Howling Wolf and twisting them around in a wonderfully unique and interesting way.

M2: Captain Beefheart was almost the only direct musical influence on the Residents I could come up with. Especially "The Blimp"...

St.J: Yes, on *Trout Mask Replica*!

M2: ... which had the vocal in an envelope and dadaist lyrics.

HAR: There was no attempt to imitate his style, but the freedom...

HOM: How he twisted those influences to come up with his own thing was very avant-garde in its approach. That process inspired the Residents.

HAR: And the lyrics, the strength of his lyrics—that was a definite influence.

THE RESIDENTS' GREATEST HITS

M2: An artist who seems to resonate with the Residents is Man Ray. He had a theory of obscurity—and he was able to list his ten best photographs, which reminded me of the bit on the *American Composers'* sleeve: "The most important things the Residents have done are *Eskimo*, *Third Reich and Roll* and *The Mole Trilogy*." I'm amazed when artists are so objective.

HOM: It's hard to know how valid it is, and I think that list would probably be updated at this point. I would add *God in Three Persons* and would give long and hard thought to both *Freak Show* and *Cube E*. It's probably too close to make a valid judgement on those, but certainly *God in Three Persons*.

M2: What was the origin of the *Eskimo* saga?

HOM: With *Eskimo*, the number one parameter was that the story had to be told in sounds. So those stories were written very collaboratively.

HAR: That album actually took four years to make. A lot of the problem was resolving it. How do you get those people out of there?

HOM: They had painted themselves into a corner.

HAR: You can't just stop it and leave people freezing. You've got to bring people back home. So the last piece of the LP breaks down the entire concept—which is all story-telling-by-sound. It gradually starts to intellectualize and slowly brings you back home.

M2: So you do feel there is a responsibility in publishing things?

HAR: The thing about making LPs—or about making magazines—you have to be aware that you are actually creating something. The world is full of stuff and it's not going to be very useful to many unless you attempt a sense of morality.

HOM: There was never that sense, though, in regard to the Mole Show.

HAR: But that's different.

HOM: The Mole Show totally jerks the rug out from under the audience. It never gives them any reality,

M2: It's a dystopia, a society that doesn't give you an out.

HAR: Just before *The Mark of the Mole* was being invented, some writer said, "Oh, the Residents, the Monty Python of rock, are back again." So our response was, "OK, the next album won't see a single smile, it's going to be one horror after another." And that's what *The Mark of the Mole* was.

MOLE PEOPLE'S REPUBLIC

M2: The Mole opus is a tetralogy with one missing volume?

HAR: Three of the *Mole Trilogy* are out.

M2: But it goes to four?

HAR: One, two and four are out. Three, five and six are missing.

St.J: Another on my list of influences was Friedrich Engels, because of the Mole Show. Would the Residents confess to any politics?

HAR: I'm sure they're there.

HOM: They don't confess to any politics whatsoever. Early on they had their own specimen of a working communist/socialist-type system, where everybody worked and everybody contributed everything they had to the Mothership, so to speak, and drew from that.

St.J: A working communism rather than a theoretical communism...

HOM: Exactly, no theory involved whatsoever.

HAR: And no rules either, everyone just did it.



Rex Ray

"Jailhouse Rock" is really about homosexuality

HOM: It worked until fate intervened—as it would have one way or another—and a situation threw it out of balance. They then did a pretty good job of recovering—sort of a modified capitalist/communist synthesis. They are 100% capitalist at this point. Although, once again, there's no ideology involved.

HAR: There never was.

HOM: Just practical ways of dealing with life.

HAR: To get to the next step.

HOM: To get the next album out.

PUT A CHAIN AROUND MY NECK...

M2: As the Residents get more sophisticated they seem to deal with bigger emotions. The raw emotion of "Teddy Bear" for example.

HOM: That was the intention with the Elvis material. There were a lot of emotions in that material that had never been fully explored. These underlying things were intriguing to go in and rework, to bring to the surface. Like "Teddy Bear"—Elvis did it as a light pop thing. It's fluff, but there's a whole undercurrent of S&M.

M2: Verging on cannibalistic menace.

HOM: Absolutely. Take "Viva Las Vegas." The Residents didn't make up the fact that it's about a loser whose whole life is dreaming about going to Vegas and hitting it big.

HAR: "Jailhouse Rock" is really about homosexuality.

M2: So the band began dealing with more accessible emotions.

HOM: Maybe, in a way, they became more aware of their own emotions.

A GAFF IN THE SHOW

HOM: The Freak Show started out to be about a circus, then it was about a *pony* circus...

HAR: A roller-skating pony circus.

HOM: It kept going until it was decided it would be a Freak Show and that felt right.

T-shirts

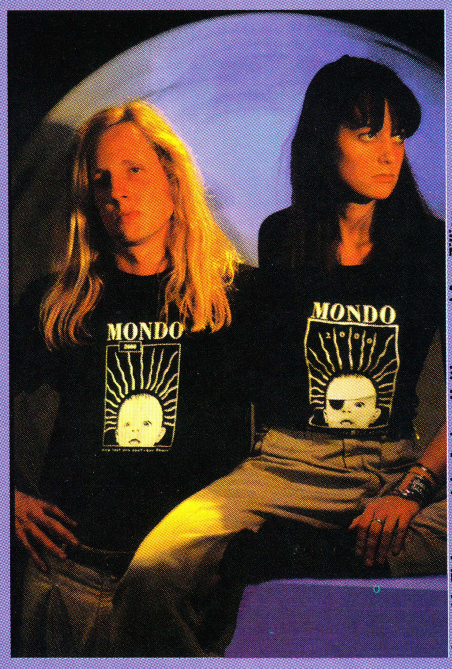


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M2: How so?
HAR: It followed a year and a half of touring, and there's a certain feeling of being in a freak show when you're on the road. People come and stare at you. You start feeling like a pinhead, depersonalized and objectified. Then the quality begins to turn, and the audience are the freaks. The stage just draws the line. Who's watching who?
HOM: Where are the real freaks?
M2: Did The Residents ever "pay dues"—you know, where the crowd is drunk and doesn't care who's onstage?
HOM: They did—in Australia, in a poolhall in Kansas. They played a disco in Spain where only 10% of the audience knew who they were, or cared—and as soon as the Mole Show ended, it was BOOM-chuck BOOM-chuck disco, and the Residents couldn't get off the stage fast enough.
M2: Are you casting freaks for your next stage show?
HOM: You know any?
HAR: We're not talking about your normal *everyday* freaks.
HOM: No, in true freak-show fashion, only about three of them are really freaks—the rest are just gaffs.
M2: Like the classic freak show hermaphrodite who shaved the left side of his body and wore one falsie and "dressed to the right." The carney word for a fake is "gaff."
HOM: Exactly.

MULTIPLE MEDIACS

M2: I've seen the computer-animated "Harry the Head" video and I understand there is related media.
HOM: *Freak Show* will have its own comic book. We have commitments from various artists—Brian Bolen, Charles Burns, Gary Panter, Kyle Baker, Mark Bayer, Savage Pencil. Each freak will have a different artist.
HAR: Then there's the *Freak Show* CD-ROM that we're collecting data for. That's out around Christmas as well. Animated, interactive—you wander around through the windows. It will be randomized so that when a window opens you never know what'll pop out. We've got a lot of people working with us on this. They tell us just to think about what we'd like to do, since the mappings are all done.
M2: I always thought of the Residents as inspired primitives when it came to slick tech.
HOM: The truth is, that was fine at the time but at some point...
St.J: I always thought the Residents were newest tech, newest technique.
HAR: *Freak Show* is digitally recorded on Mac software, real edgy stuff.
M2: Doesn't mean it has to sound like the Pet Shop Boys.
HAR: It's pretty slick, pretty slick. The real problem is to feel you have a responsibility to be any certain way whatsoever.
M2: [*Dejected*] *We want our same old Residents!* [*Laughter*]
HAR: You can have your old Residents—and *now they're available on CD.*
M2: Some think CDs are the nuke plants of audio.
HAR: I love CDs. I don't even *care* if they last. Just enjoy them while they're here.
M2: The Cryptic Corp. *welcomes* the fact that they'll have to be replaced in ten years.
HAR: That's no problem. We're ready for a new form anytime.

PLAUSIBLE DENIABILITY

M2: So the theory of obscurity is over?

HOM: You're the first interviewer to get it. You can't make much of an argument for it after you've been in *Playboy* and *People*.

M2: Obscurity lost is not found again.

HOM: Exactly.

M2: The Residents are really John and Yoko.

HOM: Yeah. In the latest fan club mag, *The Eyeball*, the big question is, "Is there only one Resident?" Is it David Byrne or is it the whole band in *Stop Making Sense*? It's what *they* say it is—*four Talking Heads*. With the Residents, there are four members.

HOM: There're lots of pictures and always four in each one. I make those pictures, and I've always been extremely careful.

RESIDENT SURREALISTS

M2: The Residents' work has a terrible beauty. They have to have been influenced by the Surrealists.

HAR: Being influenced by Surrealism is the same as being influenced by life. But you could say that Surrealism is an interest people who like the Residents have in common.

M2: The automatism with which the Residents create is a Surrealist concept.

HOM: Automatism is the way they write, basically. They clear out their minds and just let them fill up with whatever comes in, in a semi-conscious way.

M2: A Surrealist poet once told me there is no Surrealism without the group. A definition of Surrealism is "the communism of genius."

HAR: Hmmm. We've all just had a reasonably surreal evening...

So we let them off the Rack and drove them back across the bridge to San Francisco. M2

Being influenced by Surrealism is the same as being influenced by life

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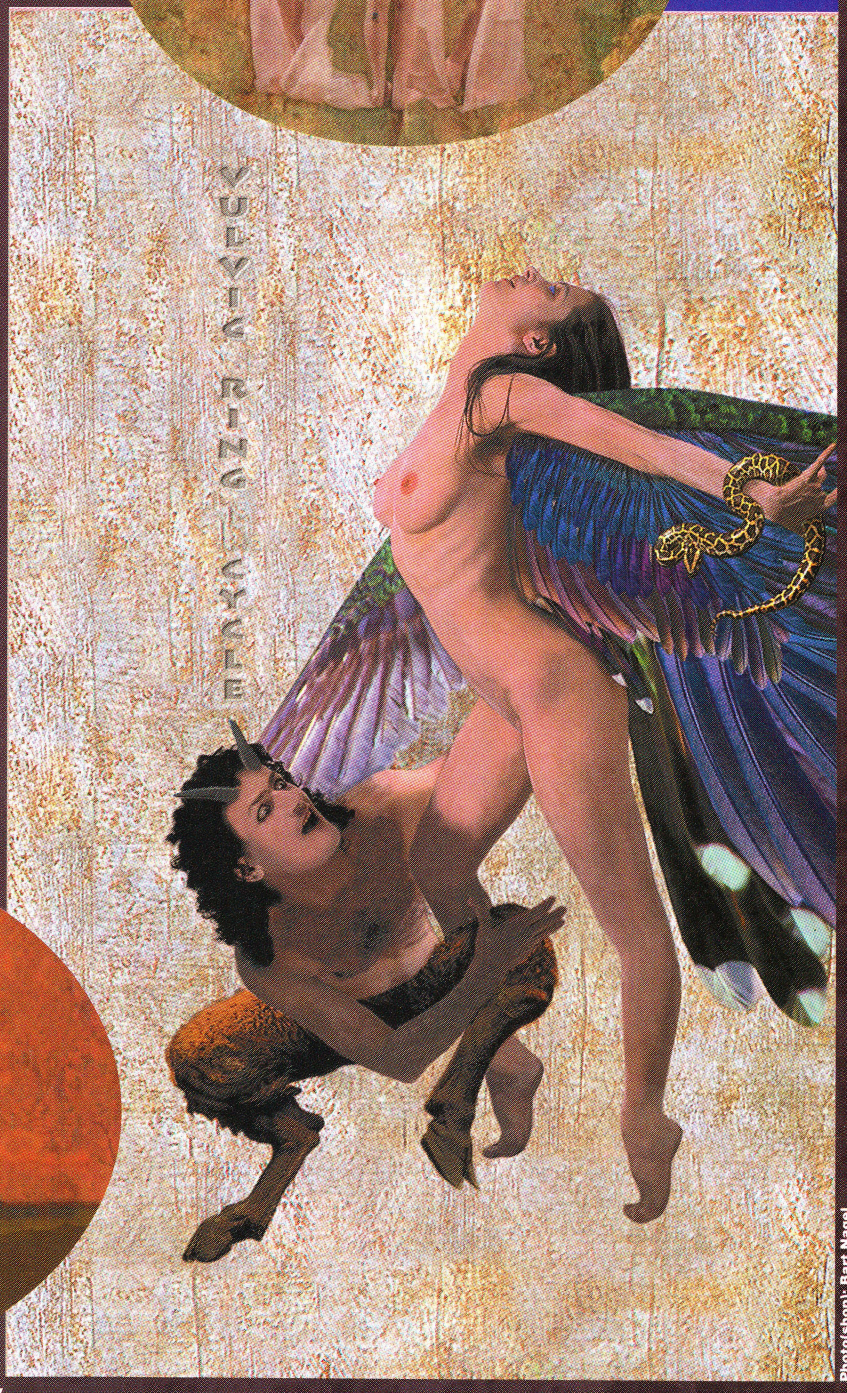
GROANING, MOANING, ON YOUR KNEES
PANTHER, NIGER, COME TO ME
BLOOD AND MILK TOGETHER FEED THE PLEASURE

CARMINE, THROBBING, SENSES REEL
FLESHY MYSTERY, PAGAN MEAL
DIONYSUS SCREAMS AS WE GIVE PLEASURE

OSIRIS SHATTERS, ISIS HEALS
HERMES' CAULDRON, STELLAR WHEEL
THE ANDROGYNE WILL SOAR TONIGHT
FOR THOSE WHO DROWN



Photo: Heide Foley (shop): Bart Nagel



Photo(shop): Bart Nagel



Photo(shop): Heide Foley

THE RECRUDESCENCE OF PAN

How telling the resonances. Here at the end of the 20th century the notion persists: Rude, crude, lewd. Pan is still the sexual bogeyman. Rape, incest, masturbation and exposure are his specialties. But Pan is also known by the epithet *Lysios:* "the Releaser" or *Lytirius:* "the Redeemer." Talk about your moral ambiguity. How to reconcile Pan's reputation as barbarous and foul with his function as the sender of mania, ecstasy and the *furor divinus*?

His epithets in fact reveal all. Pan signifies redemption through release. "Furors" or extreme states of the soul had a purifying cathartic effect. Yet there was almost an ordeal aspect to them. "Extreme pleasure and pain are among the worst diseases of the human mind" Plato tells us. The body too was thrown into contortionistic or choreic movements— shudders, spasms and convulsions. "Beauty is convulsive or not at all."* "Passion is what we most demand— beauty only satisfies its possibilities."**

But these maids in their fawnskins were not merely beautiful and frenzied, they were *dangerous*. Female eroticism has always spellt a threat to the male hegemony. The wandering womb was like a succubus, like Baboutzika. The domesticated womb harbored the mysteries of creation. The thyrsus or fennel stalk was not only phallicly empowering but *also* a receptacle for the dangerous and transformative— fire, insects or spiders. Prometheus carried his coals in the pithy core of a fennel stalk.



Queen Mu

Frenzy. Danger. Mystery. Who were the maenads? Were they proper Attic matrons? Young girls of good family? Struck by Pan with frenzy under the bloodstained maculated moon? Hysterics who tended the distaff by day, but whose wombs wandered by night? Like cows stung by the *oestros,* or gadfly, the maenads were "stung to madness" by Dionysus. Was it involuntary—like the Arctic hysterias—or cultivated and institutionalized?

And what triggered their frenzied madness? Hemp, ergot, fennel? Tarantula venom or yellow-berried ivy? Wines spiked with deliriants? Quail fed on henbane? *We'll never know.* Few interlopers have dared spy on these female mysteries since poor Pentheus!

But we *do* know the symptoms of possession. The shining, bulging eyes—perhaps rolled back to reveal the whites. The involuntary cries and vocalizations—animal like or babbling. The supernatural strength and power. The head thrown back in a characteristic pose known as "hurling the throat" signifying an excess of neuro-hormonal release.

What do we know of the wilder shores of Arcady? Of Thrace and Macedonia—the homeland of witchcraft and maenadism? The glens of Cythaeron, where the women rampaged in swarms like bees? In fact "swarming" was the word used for this kind of irresistable contagion or mass possession— like an emotion that thrills through an audience gripping it like a single entity.

Pan is the only god to have died in historic times, Plutarch tells us. All nature wept and moaned at the news. Yet Pausanias found Pan's shrines, altars and sacred caves still frequented. Pan survived as "the erect man" of Arcadian folklore.

These currents have passed down the centuries through clandestine rituals and secret revels. And today... are there maenads among us? Listen to Lady Drew as she invokes the great god Pan. *"Ephrix eroti"*: I shuddered with Eros." Her voice is a perfect instrument of the mimetic art. The art of "winged words"—the seductions of Circe—spells, charms and incantations. The use of vowel sounds, tone-colour, and onomotopoeia. Sounds that are sometimes inarticulate and even sub-human.

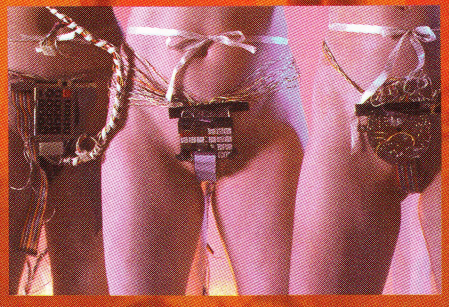
But Lady Drew is a digital maenad. Instead of the *aulos*—the Phrygian pipes that Plato would have banned—she is mistress of the Emu 3. Her dithyrambs are digital, her sonic textures are densely foliated and overlaid. Yet all can be consciously discriminated through the miracle of 3-D holophonic sound. She creates an aural *thaumatopia,* a wonder spectacle, an acoustic recreation of the Dionysiac mysteries. It is hard not to be carried aloft.

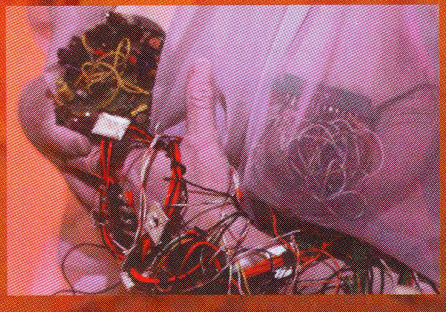
* Andre Breton

** Flaubert—that self-proclaimed "male hysteric."

The Maenads: Kim Jordan, Kat Romance and Marlene Deel; Photos: Liz Zivic; Background photo: Rebecca Stovey







DIGITAL ISIS OF THE VULVIC RING CYCLE

Our digital Isis is Lady Sarah Drew—sorceress, trance performer and chameleon extraordinaire. Overlaying ecstatic, erotic and ritualistic imagery of ancient Oriental and Occidental mythic landscapes, she combines digital media in wondrous new ways. Her Synaesthetic Studio is a hybrid production facility that serves as a vibrant transcultural and trans-temporal real-time evocation of the presently evolving *topos*: the Cyber-Pacific.

According to Lady Drew, *Bacchic Pleasures* (one of ten pop vignettes in *The Vulvic Ring Cycle)* "represents a translation of the Graeco-Roman Bacchic Mysteries into the post-modern language of Cybernetics. It is a story of transmutation. Both on the microcosmic and macrocosmic level."

In keeping with the original Dionysiac and Bacchic rites, the video and dance track portrays extremes of sexual experience and explores the subterranean elements of the feminine psyche.

Liz Zivic



Rebecca Stovey



Liz Zivic



Rebecca Stovey

NECKLACE BY
TACKY TECH CO

PLAYING IN THE MYTHOS

CAN BE DANGEROUS

and unpredictable. Like Carnival, strange entities make their appearance and the margins of reality start to blur. The cast and crew were not prepared for the onslaught of the Irrational. The oneiric quality of the video began to penetrate their waking lives.

According to director Heide Foley, "When it starts rushing though the vortex, it really pours. Mythic worlds have a life of their own and... a specific form. The myth we are creating has started to spill off the set and into our day-to-day lives. Members of the cast and crew have related shared dreams (nightmares) and hallucinations. It's been like catching a contagious virus of hyperreal eroticism."

Video Producer and Director
Heide Foley

Cinematographer
Tom Sephton

Costumes
Travis Jaggers

Hair/Make-up
Katherine Richardson

Timbre Design/3D Sound Mix on Bacchic Pleasures dance track
Alex Stahl

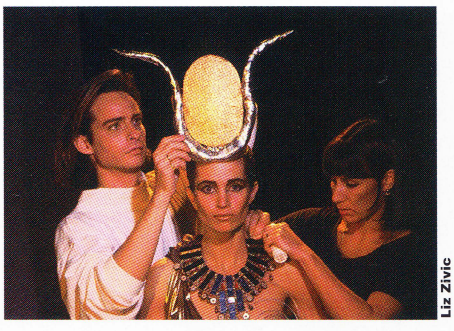
Animation Sequences
Cameron Noble & Carlos Segelo

For more information on
Lady Drew, Bacchic Pleasures
or The Vulvic Ring Cycle:
Synaesthetic Media/
Heide Foley Productions
P. O. Box 12771
Berkeley CA 94701

CyberSatyrs: Greg O'Neil and Stafford; Photo: Rebecca Stovey







Liz Zivic

DRESSED TO THRILL

The Erotic Fashions of Ellen Schippers

Ellen Schippers' clothes are considered by many to be the erotic haute couture of the Netherlands. Using vinyl, plastic, leather and rubber, her designs create a strong erotic tension between harsh materials and soft flesh. Cutouts in the garments reveal skin in unexpected places, altering perceptions of the architecture of the body. Schippers presents her erotic and science fiction-inspired clothing in unique performance events which show off her designs while detonating the aesthetic sensibilities—and the libidos—of the spectators.

—Gareth Branwyn



Cor Van Gastel

Photographs: Gerry Hurkmans

Ellen Schippers tells us:
I want all people to have the freedom to express their sexuality, and I have chosen clothing as a vehicle for this. The erotic aspect is very deep and powerful, and therefore, forbidden to explore—especially for women. When I was growing up, it was forbidden for them to express eroticism in their clothing. There was—and still is—a big separation between decent girls and *naughty* girls. It has always been my goal to expand the limits of what is acceptable. I want women to be able to *wear* their sexuality.

People change with the clothes they wear—their attitudes, body language, and behaviors. I am interested in clothes that can open up a doorway into a realm of fantasy—and new ways of behaving.

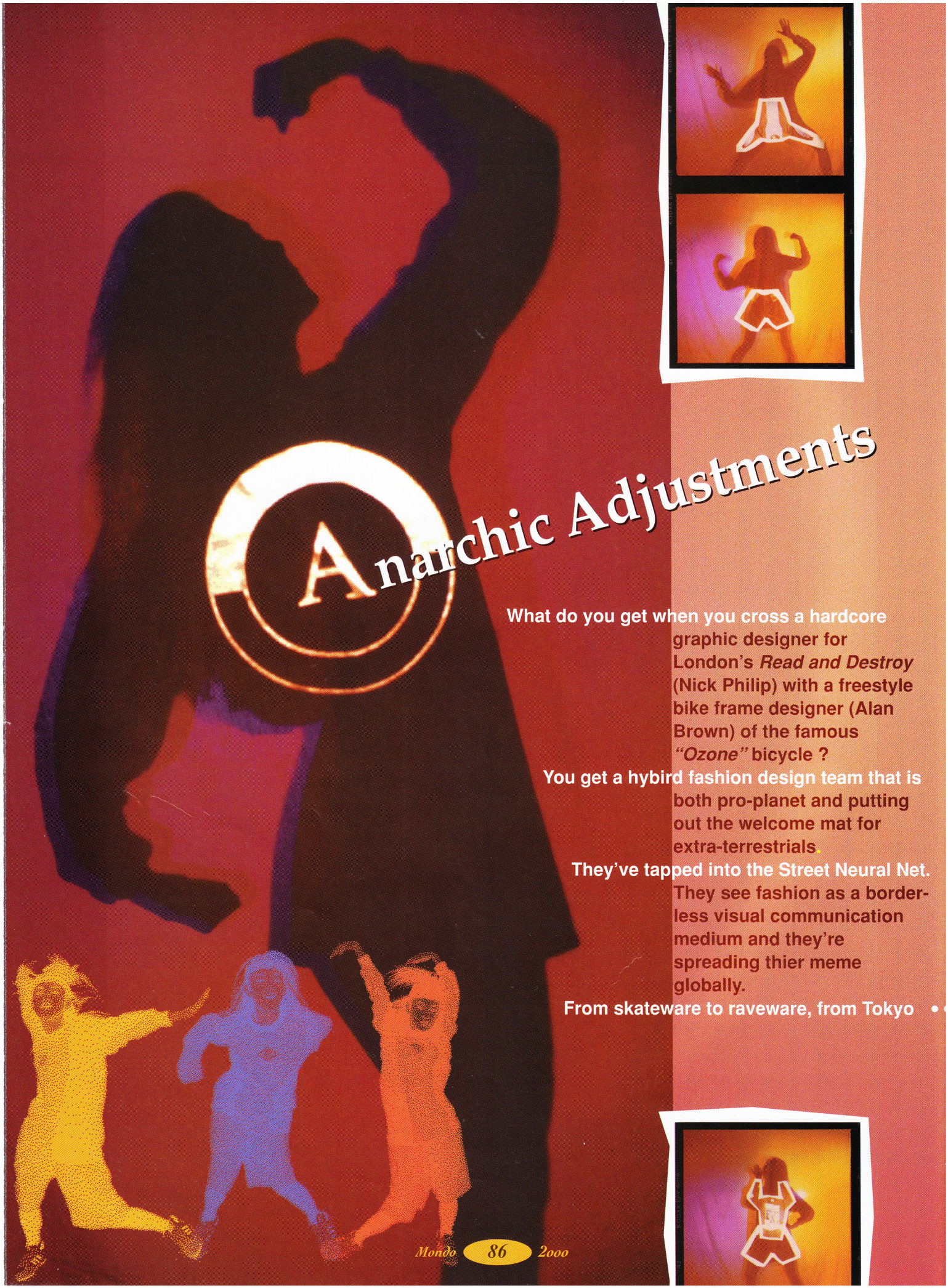
Erotic clothing is defined by the materials used, and by the approach to design. Leather, latex, and plastics create a provocative incongruity with the body and with conventional materials. Cotton just doesn't do it for me. The designs must be tight-fitting, sophisticated, and arousing to wearer and viewer.

I have all kinds of customers, ranging in age from 20 to 65. Some are very rich and they collect my work, while others save up their money for a long-desired object. Besides my Dutch customers, I have regular clients in France, Germany, Switzerland, and the U.S. The theatrical nature of what I do has been recognized in the dramatic arts—rock groups, movie directors, and even a ballet company have made use of my designs. In August of 1990, I presented my work at the World Science Fiction Conference in The Hague.

In my shows, I try to create a complete ambience that will make the audience more open to erotic suggestion. I am constantly trying new ways of presenting my work so that I don't fall into the fashion show formula. *My goal is always to combine art, clothing, and eroticism.*



A catalog of Ms Schippers art fashions is available for $15 from: Ellen Schippers Fashion, le Jan Steenstraat 112 (3rd floor), 1072 NR Amsterdam, The Netherlands.



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• • • • to London, their clothes are eminently wearable—and *worn* by such folks as Jesus Jones, Deee-lite, and EMF. Politically correct cotton embazoned with exhortatory slogans. "The future isn't what it use to be".

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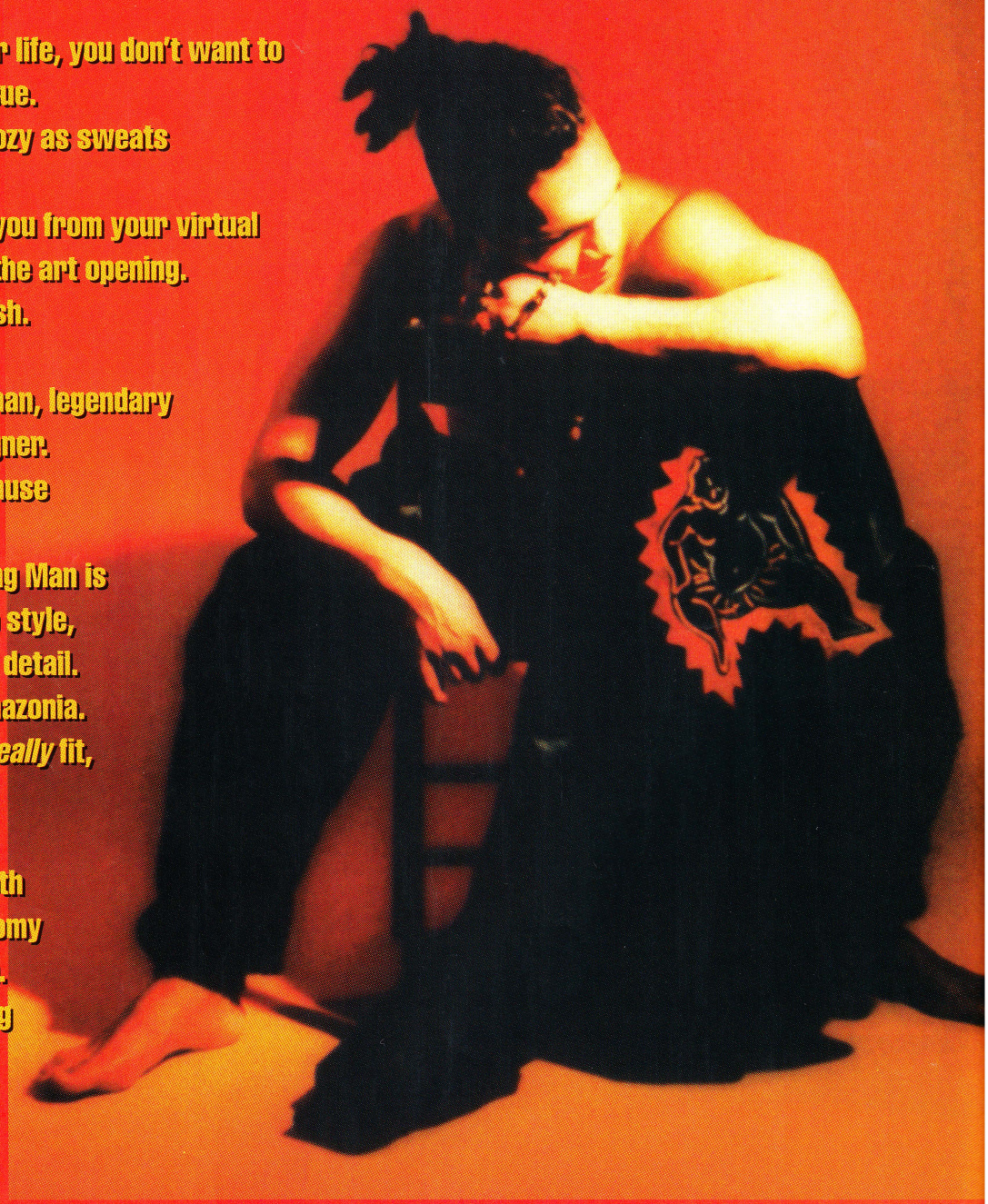
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MAN



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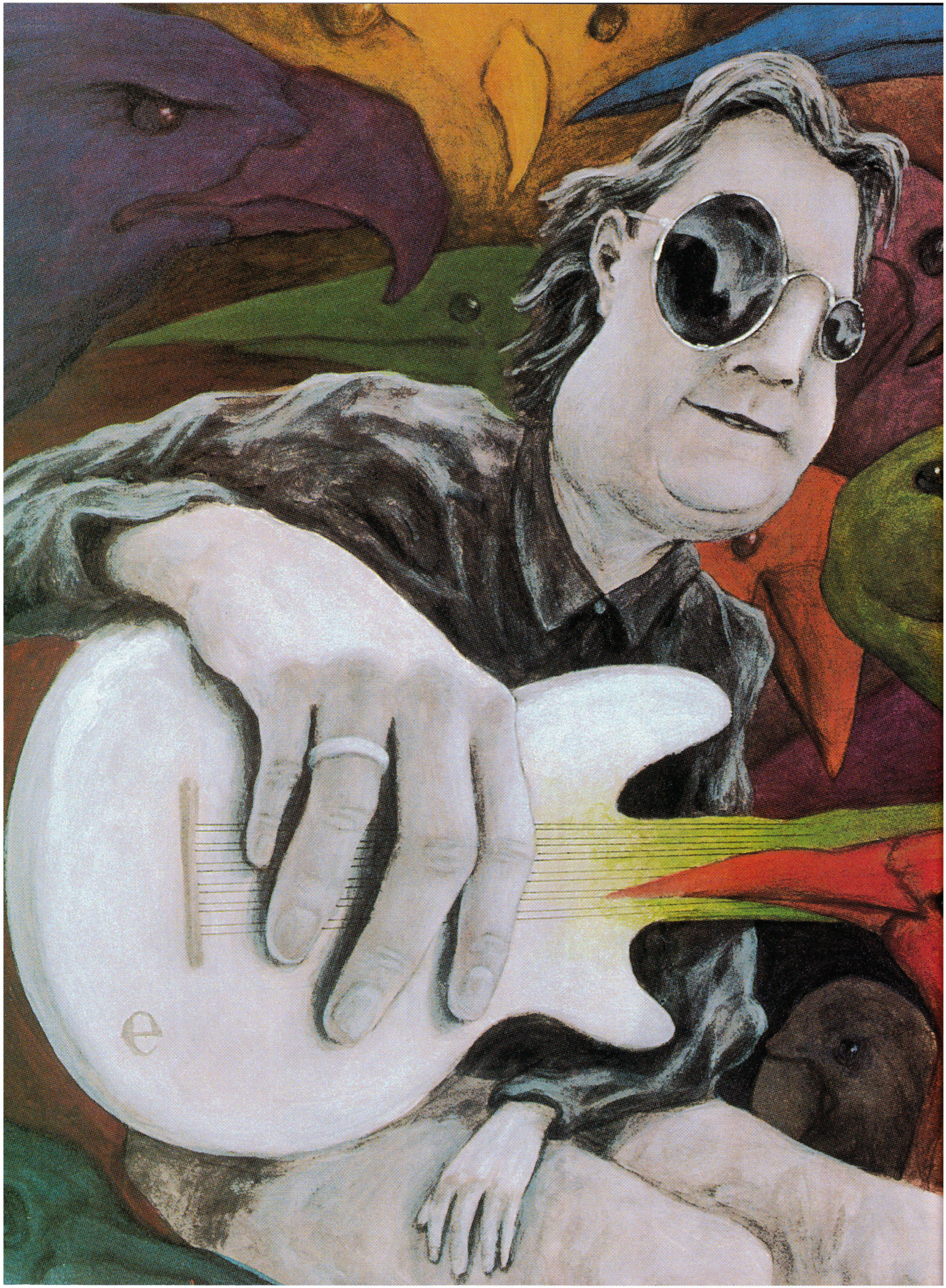
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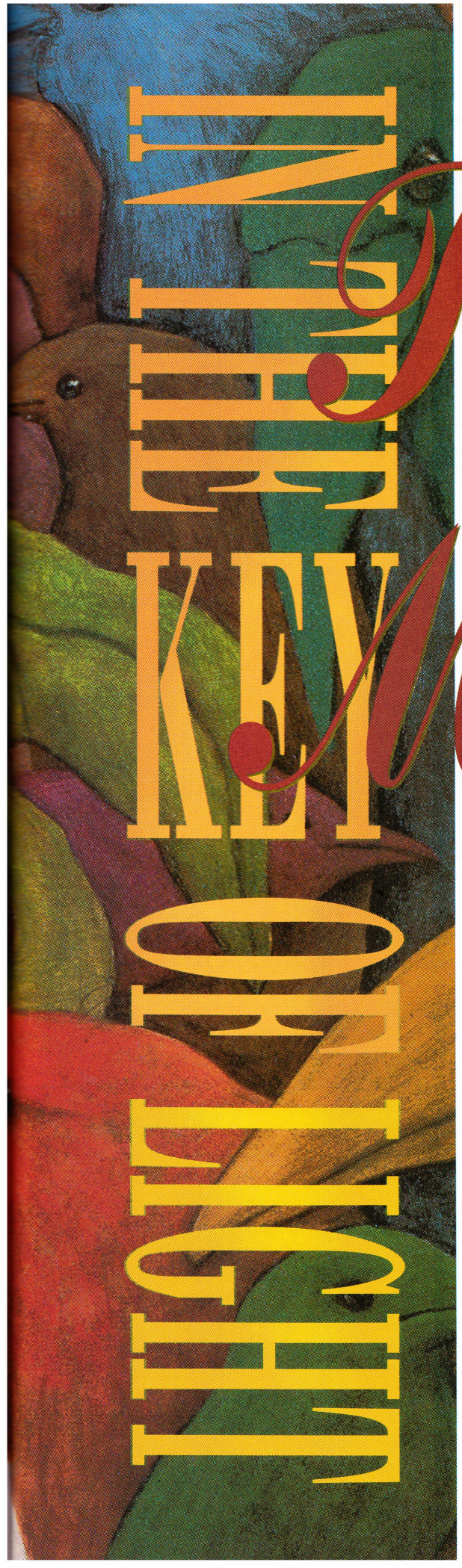
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Roger McGuinn

Back From Rio

In Conversation with Jas. Morgan and Sandy Pearlman

Blue Öyster Cult magus Sandy Pearlman hopped inside Stephanie's Volkswagen.

"Don DeVito from Columbia Records called up this morning," he reports as we pull away. "He said, 'Colors. He doesn't want to talk about the colors.' You sure scared that Byrd, Jas."

Sandy is best known as the mastermind of the Blue Öyster Cult, but his musical career includes work with Dream Syndicate, The Dictators, and Pavlov's Dog. A Woodrow Wilson Fellow in the History of Ideas (!), his intellect burned brightly in the Heavy Metal smash/classic "Cities on Flame with Rock & Roll."

In 1965, Roger McGuinn and the Byrds exploded onto the pop scene with one of the most harmonically rich and instantly identifiable ensemble sounds of 20th century music. McGuinn's reputation as the world's finest exponent of the Rickenbacker electric 12-string guitar and his associations with the Beatles and Bob Dylan have often overshadowed his lifelong obsessions with communications technologies, electronic gadgetry and piloting jet aircraft.

This year's comeback album Back From Rio *is Roger's first recording in a decade and his strongest work since the original configuration of the Byrds. Choosing to recharge his artistic energies and remain low-profile as an acoustic troubador during the 80's, the "McGuinn sound" was re-amped and regenerated in the works of Tom Petty, R.E.M. and Elvis Costello.*

Despite being canonized as a "classic rock" figure, McGuinn is definitely up to speed and online.

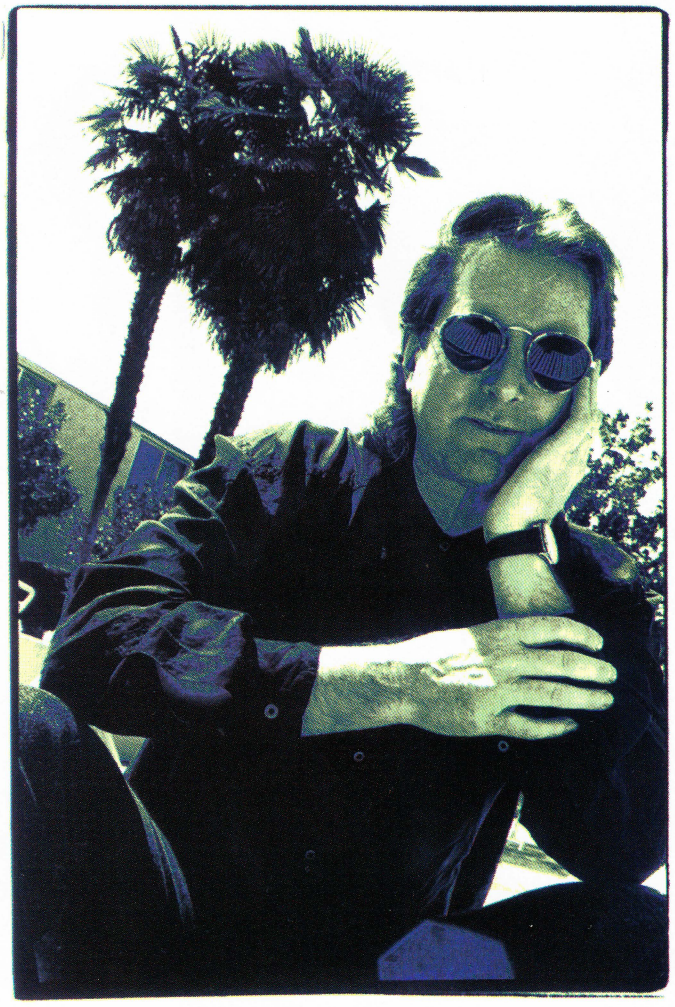
"It's Dylan's 50th birthday next week," he mentions. "His office called me and asked for some poetry for his party. So I wrote some and E-mailed it over to him on CompuServe."

The times they are a-changin'...

—Jas. Morgan

Eric White

You mean the term "Heavy Metal" came out of something the Byrds did!?!



Stephanie Rauwer

HOW STRYPER GOT THE "Y"

MONDO 2000: Why don't we start with your Heavy Metal theory, Sandy?

SANDY PEARLMAN: I invented the term "Heavy Metal"... it's my fault. I actually got it out of the periodic table of the elements, but I am the person who stuck it onto music when I was a writer.

ROGER McGUINN: That's a dubious honor, really.

SP: Here's how it happened. One day I was listening to "Artificial Energy" on *The Notorious Byrd Brothers*. I was impressed with the quality of the distortion—the over-modulation, the IM components, the inter-modular components—the incredible complexity of the distortion. I said, "Here's something new that I don't remember hearing before." I thought back and said, "Well, maybe on a live Buddy Guy record, where he was using the amp to generate a similar distortion series..." but I think the most impressive, and the most directly vectored, use of this was on your album.

RM: You mean the term "Heavy Metal" came out of something the Byrds did!?!

SP: I'm afraid so. You can find it in my *Crawdaddy* article on *The Notorious Byrd Brothers*. So here I am speaking to the Ur-text, so to speak, on this particular subject.

RM: Just another arrow we put into the quiver of innovation.

SP: My theory is that it has to do with a kind of artifact that is generated at the interface of the pick-up and tube amplifiers.

RM: Tube amplifiers, like Marshalls.

SP: Yeah. Were you using Fenders then?

RM: Yeah, Dual Showmans. They were two-valve amplifiers.

SP: Did you have a self-conscious sense that you were creating a new sonic form?

RM: No, we were just messing around. That's what we did with everything. At best we were trying to keep up with what we heard around us, mainly the Beatles, Stones and Dylan's stuff. The Beatles stimulated us to be more experimental than we might otherwise have been. I don't know who started messing with that first—it's a chicken/egg thing. I think on *Younger Than Yesterday* we started to get into that and by *The Notorious Byrd Brothers* we really got experimental. With *5D* we experimented with jazz fusion and we got into Stockhausen-like stuff.

After the first couple of singles, we really weren't motivated to make hit records. We didn't care what we did. It was fun. We didn't get any more hit records, though.

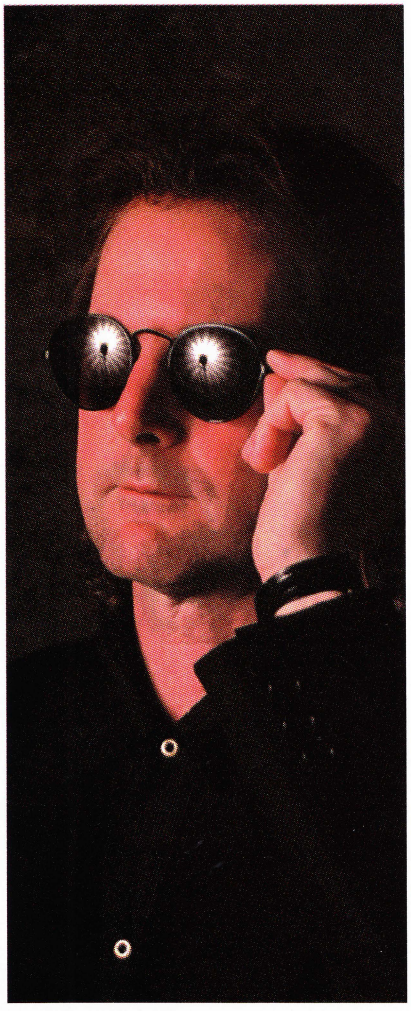
SP: But you achieved immortality.

RM: [*Laughs*] Yeah—or whatever. And Heavy Metal! *That's* funny.

SP: Here's a funny thing. I think what you guys did—besides being the first people to make a concerted use of a certain kind of distortion—was to invent a sound module. A form that you plugged songs into, whether you'd written them or not.

RM: Yeah, that's true. Sort of a sonic template.

The spotlight's on everyone now: Big Brother's here, and it's us!



Jay Blakesberg

LOVE THY NEIGHBOR, FILM THINE ENEMY

M2: So are you still into gadgets? What personal electronic technologies have captured your interest lately?

RM: I've got a couple of computers. I've got an IBM PS2 at home. I'm on CompuServe. I love to get into hamnet and check out scanner frequencies around the world. I carry an AR1000 Scanner with me all the time, which gets all short-wave radio up to 1300 megahertz. It cuts out the UHF TV band; that's all it cuts out. I keep a Sony short-wave ICF 7600W, which is continuous from .5 to 30 megahertz and includes stereo FM. I carry an Aiwa DAT machine. And I carry a Sony Watchman and 8mm camcorder.

SP: Document, and put on permanent storage... [*Laughter*]

RM: ...and a pair of Motorola P50 radius walkie-talkies.

M2: How do you feel about the effect of these high speed electronic technologies on human culture?

RM: Basically I think it's positive. We have a better handle on information, better information management, more information. When it comes to information, I believe that more is better.

SP: I agree. I think the Kurds would have been allowed to die in peace without anybody knowing about it. What happened in the first half of this century will not be allowed to happen again. It's too immediate for people's consciences to be assuaged by pseudo-ignorance.

RM: That brings up the camcorder revolution that caught the LA Police—Rodney King. It puts the spotlight on everybody now. You're on TV. This is it. Big Brother's here, and it's *us*!

M2: Do you think McLuhan was right?

RM: Oh yeah, I always agreed with him.

SUCKLING FROM THE CYBERNIPPLE

M2: Are you familiar with Virtual Reality or Telepresence?

RM: ...Where you jump into a thing and you're there—you really feel and see and smell?

M2: It breaks the barrier of the computer screen.

RM: So what does it entail?

M2: You wear goggles which have two liquid crystal displays, one for each eye. Also, you've got a special glove with sensors that track movement in three-dimensional space.

RM: Do you get tactile sensations?

M2: That's a weak point in the systems now. But people are working on it at places like the University of North Carolina—Margaret Minsky [daughter

of Marvin] in particular.
RM: What was the movie that dealt with that sort of thing?
M2: *Brainstorm.* Very similar.
RM: That sounds like great fun. I remember back in the early days at MIT when they were just starting work on computers—developing their flight simulator. It was very crude, but they had a runway and you could land it. I thought that was great fun. Now you can land a Lear jet on an aircraft carrier, stuff like that. Or make your own planes. It's really come a long way.

IN THE KEY OF LIME PIE

M2: I understand you have a very special cognitive talent, chromaesthesia.
RM: Well, I've always had a correlation between letters of the alphabet and colors and numbers. Is that what you're talking about?
M2: Yes, I once heard you make a brief reference to musical keys and colors.
RM: Yeah, the key of E is blue to me. And the key of D is green.
M2: What are a few of the others?
RM: C is yellow, A is red, B is brown. When you get into an A-sharp or B-flat it's orange because it's changing from red to brown. So it makes sense; it's sort of a spectral thing. I don't know where it came from or what it is, but I've had it since I was three years old. My mother had it, and she had different colors associated with her letters and numbers. When I grew up, I was surprised to find out that not everybody had numbers, letters and colors associated like that. It seemed like a normal thing to me.
M2: What happens if you go to a minor key?
RM: It doesn't change the color, but it changes the hue a little bit. A D major will be more of a lime green and a D minor will be more like a teal. I don't really think about it that much. But it does help me when I'm playing. When I play a song like "The Bells of Rhymney," it's a green song. I see green the whole time I'm singing it. The same is true of "Mr. Tambourine Man" and "Turn,Turn,Turn." Those are all green songs; they're in D. "My Back Pages" is a blue song; it's in E. G is kind of a greyish color, a dolphin-skin grey—songs like "Wild Mountain Thyme."
M2: What color is "John Riley"?
RM: "John Riley" was done in D. But it's D minor, so a teal green.
M2: Is it like a visual overlay for you? Do you see external color in the room, or is it just thinking a color?
RM: It's not that visible, but it's very, very real. I just know that I'm in a green key. I think green. I don't see it visually. I don't have hallucinations at all.

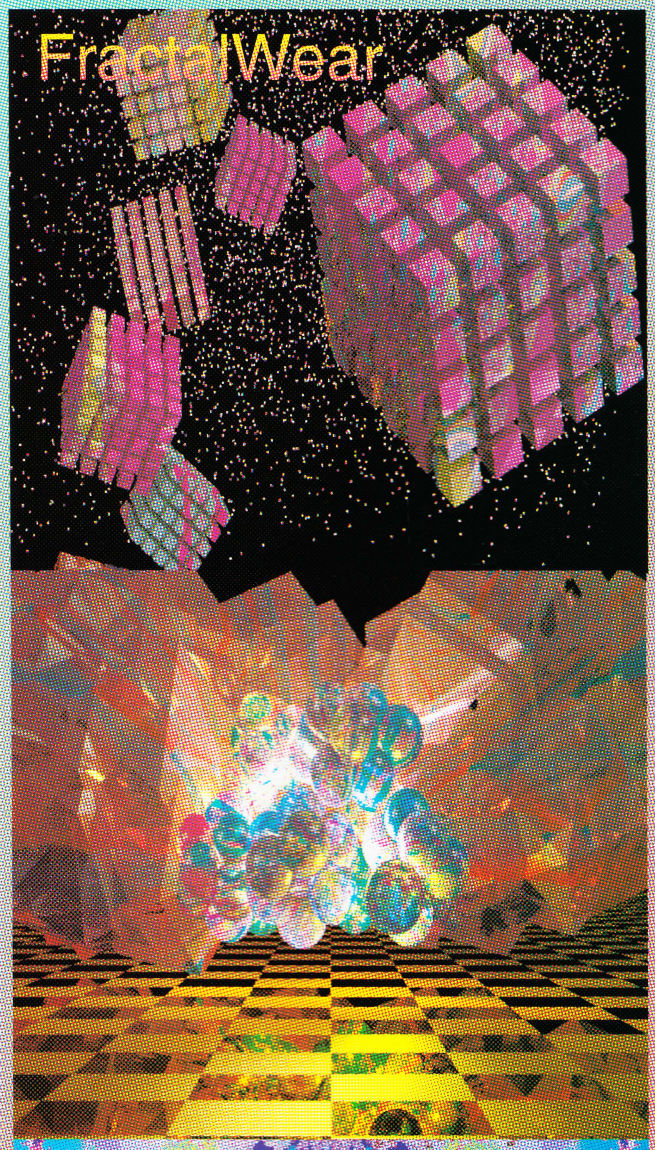

Jay Blakesberg

BUT WHAT IS CHROMAESTHESIA, REALLY?

M2: In a few cases, synaesthetes have been found to get visual *objects*, physical extensions—where colors have a tactile dimension that exerts a pressure against the body.
RM: I don't really know anything about it except that I've always experienced that. Somebody gave it the label chromaesthesia once. I don't know if that's an accurate description.
SP: That's one of the five clinical terms for the phenomenon.
RM: So, what is it? Does anybody really know?
M2: I think it's that we're used to perceiving information on discrete channels of sensory input. Synaesthesia is a merging or parallelism of sensory input at the same point of data. You're getting blendings. It can happen between any of the combinations of the channels of sensory input. It gets particularly interesting to talk with people who have certain leanings...
RM: Like video and audio; sight and sound?
SP: Well, according to the definition that I read last night in *Music and the Brain: Studies in the Neurology of Music* [MacDonald Critchley Ed., 1977], synaesthesia or chromaesthesia is classically associated with a correlation between colors and serially organized music, information, numbers—things of that sort. That's particularly where you see these parallelisms.
RM: So somebody could listen to a symphony and say, "This makes me feel orange."
M2: Or you get an image, a metaphor, in your mind.
RM: Of course, the whole concept of tone poem, Smetana and that sort of thing, is designed to create a mental picture. It's the same with the *New World Symphony*. You're supposed to see the sights and sounds of early America.
SP: Ah, a big fan of Czechslovak music...
M2: It's onomatopoetic.
RM: Right. You see the great plains and the industrial east coast of America in the *New World Symphony*. You can hear the wagon wheels and the steam engine. About twenty five years ago, some friends of mine in the Village were kicking around a notion about the correlation between sounds and music styles—like country music [*he imitates galloping sounds*], it's horseback music. It has the kind of feel you get on a horse. Bluegrass is cylinder piston engine music. That's why it works so well in the *Bonnie and Clyde* chase scene—you can hear the motors running. The sounds of Frank Sinatra and the crooners of the 40's are the sounds of a big TWA Super Constellation with the motors going. And then the Beatles came out. It was like jet sounds, like a jet engine revving up.
M2: How did you feel about the Beatles song "Rain," which has a similar sonic quality to your work at the time?
RM: I loved it. That's a jet-sound song, definitely.

8,000,000 MILES HIGH

M2: What's going on in science that fascinates you?
RM: The notion of heating some of the planets, to re-oxygenate and re-heat the surface of Mars. I find that fascinating.
M2: What about space stations?
RM: I like that too, although it sounds a bit confining. I think I'd get claustrophobia unless it was big, like at EPCOT Center. There's a ride there called Horizons. It shows you what a space station would look like. It's a fairly large one; it's a spheroid, and it's got little towns and trees and swimming pools and athletic fields. I think it might be a cool place to live. M2



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-- the village voice

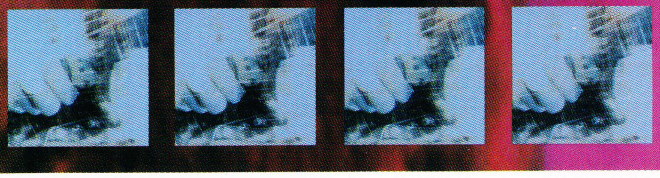
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Let's Get Astrophysical, with

Doctor Fiorella Terenzi

In Conversation with Jas. Morgan, Bart Nagel and Gracie & Zarkov

Northern Italy has long been famous for beautiful music and beautiful women. Fiorella Terenzi is a strikingly beautiful woman who studies music composition and operatic singing at Milan's Conservatorio di Musica Giuseppe Verdi. She is also a professor of mathematics and physics at Licio Scientifico in Milan. The magnificently endowed Dr. Terenzi received her doctorate in physics, with a concentration in astrophysics from the Università Degli Studi in Milan.

Her extraordinary first album, Music from the Galaxies, *on Island Records, combines her twin passions for music and astrophysics. She was recently visiting researcher at the Center for Music Experiment of the University of California, San Diego and will be performing lecture/concerts at Griffith Observatory, Los Angeles, in November and December.*

Dr. Terenzi discussed, in her charming Italianate inflection, hardcore astrophysics, computer music, opera and signal processing. What they have in common is the subject of our interview.

—Gracie & Zarkov

ASTRONOMY DOMINE

MONDO 2000: How many albums do you have out?

DR. FIORELLA TERENZI: *Music From The Galaxies* is my first one. It's galactic music. It's the first experiment in transforming radiation from celestial objects into sound.

M2: How did you invent your Music from the Galaxies?

FT: I started to look at the sky with my grandmother—going out to the country when I was a baby. When I was 4 or 5 years old, my grandmother would take me out into the campagna, and she would look for the right places, as dark as possible, to look for meteors. Later, at the Università di Milano I was taking astrophysics and astronomy, so I was studying the whole sky, the radio sky and the visible sky. At night, at the Conservatory (Milano Conservatorio di Musica Verdi), I was taking composition, opera and piano. I began to study music theory and how music can be specified as frequency and intensity. So if I had frequency and intensity from a celestial object, and musical notes are frequency and intensity, there must be a way to make music from the data. That was my first intuition.

M2: So that's when you had your basic conceptual leap?

FT: No, I didn't really make the connection until I took a course in radio astronomy. I was also working on radio astronomical classification—determining the time intensity and frequency for a particular galaxy. The data was in the Fourier transforms on the computer. I was looking at the frequency of hydrogen (the 21 cm line), and molecular lines. [*The hydrogen and molecular line data yields information on how stars form from interstellar gas. This signal also yields data on whether the universe is open or closed by looking for the "missing mass."*—Z.] This was a raw data count, looking for any kind of structure. I was cleaning up data, removing the background contribution of the sky from around the

After eight months I had four hours of sound from the galaxy. Then I pressed "execute"



Bart Nagel

major peak, checking out the calibration of data, and removing ground noise. [*Data reduction is the necessary drudgery of Big Science and the inexorable fate of all graduate students.*—Z.]

M2: When did the data stream become music?

FT: I realized that radio waves coming from a celestial object were very similar to musical notes. Both have an intensity that gives you loud or soft sound. They also both have a frequency that give you high or low pitch. So I went to my professor and said, "Instead of looking for an image of the universe, instead of looking at photos of stars, I want to try to *play* the universe. I want to hear the sound of radiation coming from a celestial object." So I went to the Center for Music Experiment and I did it as an experiment using their big VAX work station. I believe that sound is a powerful tool to investigate the cosmos because it reflects the chemical and physical properties of celestial objects.

Think about the universe. Often you have a binary system of stars spinning together. The frequency of these stars is almost the same—not quite equal—so the two stars generate beats. This is the same phenomenon you have when you tune an instrument. You are tuning your bass to a 440 A, and let's say your string is tuned at 445 Hertz. If you play them together you generate beats. The beats stop when you tune your strings precisely. But you can't *see* beats. You can't see how the two fragments collided with your eyes. The graphic representation doesn't show you. But if you *play* the binary system of stars, you're able to *hear* beats. So this is a powerful way to investigate the cosmos.

M2: What's your method for translating radio telescope information into sound?

FT: First you collect radiation from stars and galaxies using radio tele-

scope astronomy facilities. I was using the one at Socorro, a Very Large Array (VLA) radio telescope in New Mexico. And we were using the Kitt Peak National Observatory in Arizona, and the European Southern Observatory in Germany. All of these astronomers were working on a galaxy called UGC6697. Once you collect the radiation coming from a celestial object, you can save it on a tape or send it by cable to any computer in the world.

MAN, THAT NEBULA COULD BLOW

M2: Why did you choose this particular galaxy?

FT: UGC6697 is very complex. It's a spiral galaxy. [*We live in the arm of another Spiral Galaxy, The Milky Way.*—Z.] It's really powerful. It has a strong emission and it's really far away—one hundred eighty million light years. There's a small satellite companion galaxy spinning around it. The two galaxies collided, and that created the complexity you hear in its sound. I chose it for this complexity. Also because the data was available. At the beginning I was thinking of using a pulsar. A pulsar is a star that pulses every second or maybe every millisecond. It sends a precise signal in time. Next time I'll use a pulsar because I want a cosmic drummer for my composition. [*Pulsars are believed to be rapidly rotating neutron stars that emit a highly collimated signal in the shape of a searchlight beam usually about once per second. The precision is to six or seven digits.*—Z.]

SHE BLINDED ME WITH SCIENCE

M2: How did you choose a scale and transform the radio digital data into musical scales?

FT: Let's consider data from one galaxy, from one single profile of that galaxy. The signal profile has a wide frequency range where the most important peak represents the characteristics of the galaxy. For example, if you look at that waveform, you recognize certain chemical elements. [*The study of line emission from interstellar molecules helped discover the spiral structure of the Milky Way.*—Z.] The first thing that you realize is that the waveform—every kind of radiation—comes to a billion Hertz: 0.4-1.5 gigaHertz (GHz). So the first thing is just to shift the waveform into the human hearing range, 20-20,000 kiloHertz (KHz), without altering anything.

M2: Do you pick a distinct source—like a molecular line?

FT: No. It's not a narrow range; each profile can cover a broad range of three octaves.

M2: So you simply divide by 10^6-10^8?

FT: Exactly. Sometimes a radio telescope is picking up something else, so that the broad range is much, much wider than three octaves. When the signal is shifted then I lose data below 20 Hz and above 20 kHz.

M2: Are you picking multiple signals for the music?

FT: It's a software program, with an electronic music oscillator, to apply the frequency and intensity. Choosing which harmonics you associate with the oscillator in the software, you develop a different timbre, and different texture. You say to the oscillator, "read the waveform"—that is, the waveform coming from the galaxy with all its frequencies, all the harmonics in a Fourier representation. The oscillator performs exactly the number representing the frequency and harmonics coming from the galaxy.

M2: So you divided the frequency and directly triggered the oscillator as if it had been a digitized acoustic waveform, and it comes out as music.

FT: Exactly. *Perfetto!* After this initial process there is the creative composing process that depends a little on what I want to do. I might want to stay in the electronic domain or go to the classical. Maybe, why not opera and experiment with the voice?

M2: What are your favorite operas?

FT: I like Puccini: *Tosca*, and *Turandot*.

SPACE JAM

M2: Do you perform your music live?

FT: Yes. I did the Greenpeace Music Nature Festival in Milan with Paul Winter and Montreux. I performed the galaxy using a synthesizer, a sampler and an oscilloscope to show the wave form of the vibrations. I was playing the raw data of the galaxy on the synthesizer. On the second part I had a musician playing shells, stones, coconuts and flute. I associated the galaxy with primitive musical instruments because the sounds are one hundred and eighty million years old. And then I got to the future. The galaxy was performed with harp, bass, saxophone, drummer, congas and piano—with everyone following a score.

M2: What are you planning to do at Griffith Observatory?

FT: My Griffith performance will be a lecture-demonstration concert. I will talk a little bit about the radio astronomy waves and how I process the musical notes. Then I will perform the music. I'm going to process the galaxy in 3D. Because of the round planetarium hall, I can produce a galaxy moving in space.

M2: Is your music recorded digitally or analog?

FT: Digitally. I processed the data at the Center for Music Experiment at UC San Diego. The first thing I did was to display all the numbers on my computer. The numbers represent the radiation coming from UGC6697 with intensity and frequency. The radiation is coming at a billion

Next time, I'll use a pulsar, because I want a cosmic drummer

Hertz, and the human ear can only hear sound between twenty and twenty thousand Hertz. So you have to reduce the frequency. Then you have numbers that represent the wave form, and you send this information to an oscilloscope which is able to synthesize the sound. If you send information representing a violin to an oscilloscope, it will play a violin. If you send a harp, it will play a harp. I sent galactic data. It took eight months to hear a little bit of the sound of the universe. For each second of sound on the CD, it takes eight or nine hours of work on the computer. After eight months I had four hours of sound from the galaxy. Then I pressed "execute" and the data flowed directly from the computer to a loudspeaker using a digital-to-analog converter.

GIMME A U, MAESTRO

M2: With the synthesizers, do you use even-tempered tuning or do you experiment with just tuning?

FT: With my synthesizer I'm only controlling the galaxy. What I'm also doing is breaking the galaxy into small fragments in order to play a melody or harmony. If I use the library of sound from my synthesizer, I pay a lot of attention to the timbre quality. Because if I use too much electronics it doesn't fit well with the galaxy. The raw data of the galaxy is a strong digital signal. You can recognize a strong electromagnetic signal. So I don't want to overload the composition. For that reason I'm using harp, saxophone, piano, and—soon—voice.

ELECTROMUSE—COURTESY OF MA BELL

M2: The galactic sounds on your album are remarkably similar to some of the space soundtracks I've heard in the past. Did you notice any similarity?

FT: Of course. Another similarity I noticed is when you're tuning your FM radio, you get a wah-wah sound. You're shifting between electromagnetic waves, so it's very similar to the sound of the galaxy. Also, for the first synthesizer—the Moog—they were able to use a frequency modulation with that wah-wah sound with potentiometers. So you can modify your signal. But I think it's the inspirational nature of electromagnetic signal—the noise of the electricity and the wire, the noise present during phone communication. Sometimes when you call overseas you catch a little bit of ground noise generated by the atmosphere of the earth. This is a strong signal.

M2: You said earlier that our galaxy was a strong radio emitter...

FT: Well, yes, Karl Jowsky was the first person to demonstrate that back in 1931. He was working for Bell Laboratories on communication from one ocean to another. Every time he worked he heard a big background hiss. He was wondering why. So he pointed the antennae to look for its source. He soon realized that there was a ghost radio station moving all around the horizon in synchronization with spring, summer... with the year. He knew that no one could cause that kind of registration—moving in circles around the horizon. So he realized that the signal was coming from the nucleus of our own Milky Way. And he was the first one to catch a little bit of this background noise. Unfortunately, radio astronomy moved into another direction. Radio waves became an image, a graph. [*Cosmic background radiation fills the entire sky and is the black body radiation of the "Big-Bang" expanded and cooled to 3° K.*—Z.]

M2: So you suggest using sound to identify celestial phenomena?

FT: Yes, some researchers are skeptical, but I believe it is possible to have a sound classification of stars and galaxies. Ten years ago it wasn't because there weren't computers or computer music software. Astronomers know their work but they don't know about computers or computer music. Think about the Doppler Effect. When you hear a car running down the road you hear it from low frequency to high frequency. The sound changes. The same with the earth and stars. Some stars are moving away, some are getting closer. Let's say a comet is passing through—that's the Doppler Effect. Another example is hydrogen. It has a special frequency—1420 megaHertz. Every time you tune your radio telescope to that frequency you have the distribution of the hydrogen in the galaxy. So, by using sound classification of chemical elements, in the future you'll be able to recognize the chemical composition of celestial objects—*based on their sound*!

CLASSIC ROCK

M2: How about Kepler's work? He posited the music of the planets. Did his theories influence you?

FT: I found out about Kepler and Pythagoras after my degree. Kepler had the intuition that planets moving around the stars emit a note like a musical note, and that the intonation is related to the distance of the planet from the sun. So, in theory, our solar system could "perform" a scale. A wonderful theory.

Also, Pythagoras—who built the first documented musical instrument—believed that numbers are perfect, and therefore only numbers could reflect the cosmic and universal harmony.

Socrates thought that the movement of celestial bodies generated music. But even though man is born with the music of the spheres in his hearing, man doesn't hear this music anymore. Since we grew up with this kind of music, we are unable to hear it.

M2: So when the universe sings, what is it singing about?

FT: It's singing harmony. It's singing *Prego, ascolta le armonie cosmiche de stelle e galassie!* M2

Zarkov explains it all for you:

The Fourier transform can take any analog signal and represent it as a stream of numbers, that is, digitize it. When digitized, the audible frequency range of 20Hz to 20,000Hz (20KHz) can store music on a CD. Signals from the astrophysical sources of radio emissions have frequency ranges of 1,000,000,000 to 1,000,000,000,000 Hz (1-1,000 gigaHz). When digitized, the signals are usually analyzed to study the structure and chemistry of far distant galaxies.

The brilliant conceptual leap of Dr. Fiorella Terenzi was to see the essential similarity of the two signals; that is, both are specified by intensity and frequency. By interpreting the radio telescope data through the Cmusic software language, the intensity and frequency of the signal can be transformed into the same format that represents sound on a CD. This technique could be extended by an enterprising electronic musician to other waveforms including digitized photos or videos, creating electronic "synæsthesia."

The early electronic music composers such as Varèse, Berio, Moderna, and Stockhausen accepted great technical limitations which the advent of inexpensive computer power has removed. However, the challenge to create interesting signals and wave forms remains. Without interesting waveforms an electronic composition sounds like outtakes from a bad 50's Sci Fi movie.

Dr. Terenzi's invention of "acoustic astronomy" gives her a completely novel source of waveforms. By selecting and arranging the various signals on her album *Music from the Galaxies*, Dr. Terenzi creates moody, eerie and *interesting* music that is truly "from the hearts of space."

BRAIN HACKERS.



You know who you are. You're Logic Bombers. Reality Fraggers. Chaos Cultists. Subgenii. Guerrilla Semioticians. Your favorite part of the body? The Pineal Gland. Favorite hobby? Lepidoptery. Favorite band? **Bite the Wax Tadpole,** naturally.

Bite the Wax Tadpole is Mark Dery and Darren Smith, the mediabangers whose mindslicing cassette releases have garnered raves from press, plebes and pundits.

"Wonderfully funny stuff...A wild and wooly trip through bizarre minds and cool instrumentals" – *Factsheet Five*

"One of the most stunningly original tapes I've heard in a long while, and one of the most disturbing...contains enough ideas for ten 'regular' cassettes" – Dino DiMuro, *Option*

"A masterpiece...(a) uniquely bizarre little gem" – Charles S. Russell, *Ear*

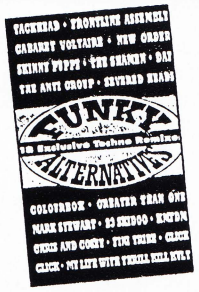
Bite the Wax Tadpole has released two titles — *Between You, Me, and the Lamprey* (SOP#230) and *O.D. on Bourgeoisie Boy Milk* (SOP #295). In addition, Mark Dery has released a solo tape, *In Mute Nostril Agony* (SOP #294), about which *Factsheet Five* enthused, "Highly recommended, literate and interesting...a surreal part of the urban/tribal rhythmic landscape."

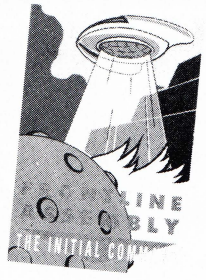
Available by mail from Sound of Pig, P.O. Box 150022, Brooklyn, NY 11215-0001. **Bite the Wax Tadpole.** Everything You Know Is Wrong.

Funky Alternatives "18 Exclusive Techno Remixes" (A-197) Techno remixes of 18 of the world's foremost electronic dance "Technocrats." None of these versions appear elsewhere!!! Tackhead, 23 Skidoo, New Order, DAF, Colourbox, Chris & Cosey, Cabaret Voltaire, Mark Stewart, Severed Heads, Frontline Assembly, The Shamen, Click Click, Fini Tribe, Skinny Puppy, The Anti Group, Greater Than One, My Life With The Thrill Kill Kult & KMFDM. Over 90 minutes!!!

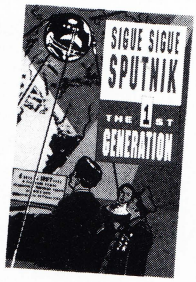
Sigue Sigue Sputnik "The First Generation" (A-194) Earliest studio demos and recent experiments. U.K. Electronic, Dub Rock 'n' Roll band with Tony James, formerly of Generation X and now with Sisters Of Mercy.

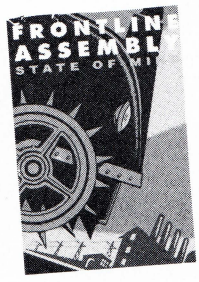
Einsturzende Neubauten "2x4" (A-133) First-rate live performances capture their concert sound for the first time. Number one German industrial band!





Techno-Electro Industrial Music To Thrill You!





Frontline Assembly "The Initial Command" (A-187) This is FLA's very first record, originally released in 1987 in Belgium, and available domestically for the first time. A classic example of techno-dance music at its energetic, hypnotic best.

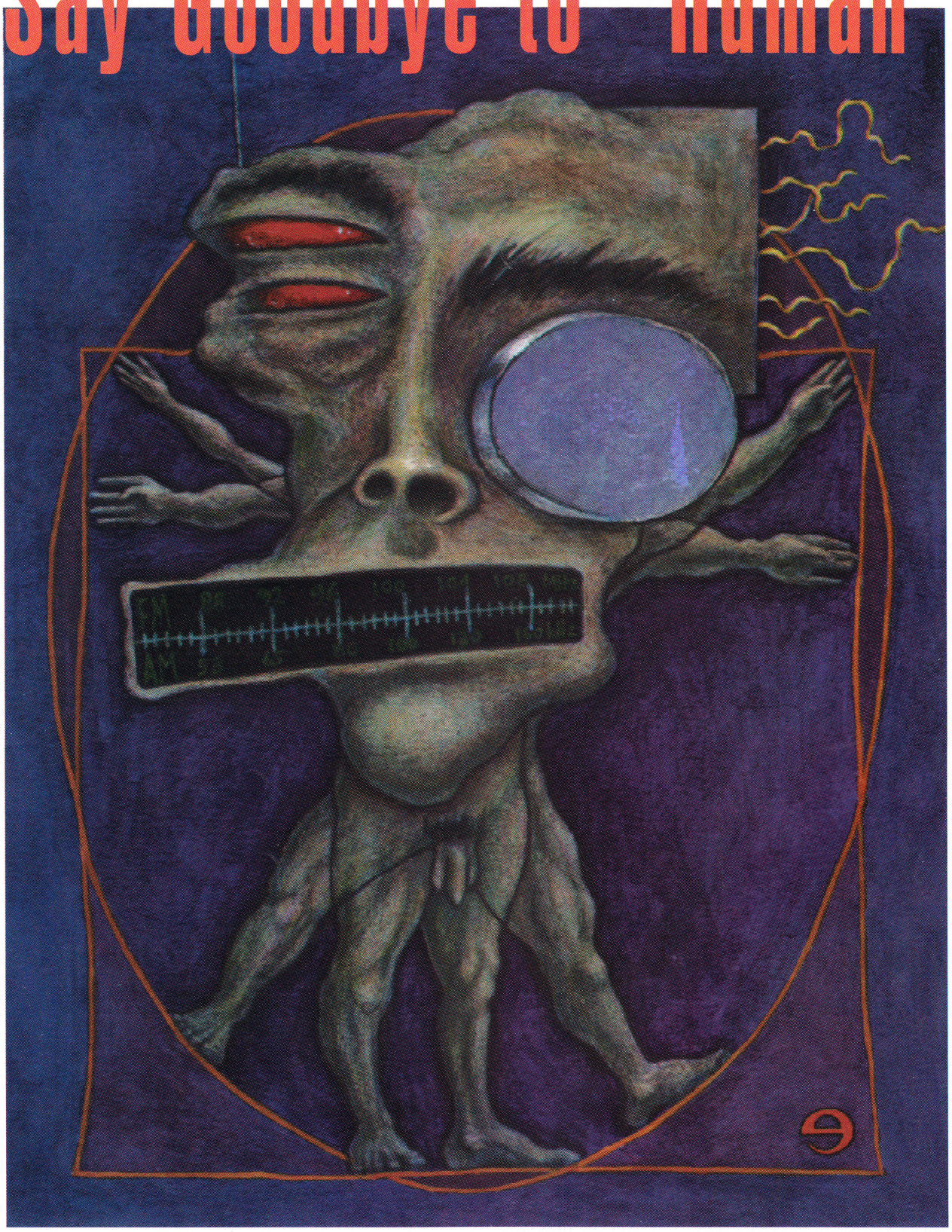
Suicide "Ghost Riders" (A-145) A superb recording of their famous 10th Anniversary Concert in Minneapolis in 1981. This influential primal electronic duo (Marty Rev and Alan Vega) first surfaced in NYC in the early '70s and presaged groups like Kraftwerk, Joy Division and OMD.

Frontline Assembly "State Of Mind" (A-180) First USA release of FLA's 2nd album, originally released in Germany only. Vanguard "rhythm terrorists," danceable and trance provoking.

ROIR

Available on cassette-only from your favorite record stores or directly by mail order for only $8.00 each (Overseas orders $10.00 each U.S.A. funds) from: ROIR, 611 Broadway, Suite 411, New York, NY 10012. (212) 477-0563. **SPECIAL "5 FOR 4" PACKAGE DEAL: Order any four cassettes and get the fifth cassette of your choice for only $1 more** ($33 total,US & Canada only). N.Y. residents add sales tax. Mastercard and Visa accepted. **WRITE FOR OUR FREE CATALOG OF ALL ROIR RELEASES!**

Say Goodbye to "Human"



FM-2030 Philosophizes with Jas. 2023 and Anita Hoffman

FM-2030

is like a radio station from the 21st century. His pure signal transmissions include Up-Wingers *and the interactive* Are You a Transhuman? *His bandwidth is as challenging to some people as his name (last decade knew him as F.M. Esfandiary).*

FM articulates his worldview with a voice and style that leave his age and origins undefinable. He is, at once, a flaming Futurist and a transglobal activist. He can occasionally be found holding seminars at the New School for Social Research in New York or, closer to home, at UCLA Extension. As a consultant, he currently has the ear of government, corporations, media moguls and NASA.

"Welcome, my friends from the future," FM greets us with outstretched arms at his Los Angeles apartment, which he calls his liftoff/landing platform. As we get seated, a helicopter cruises past the 10th floor window. Destination: the University heliport. "We'll all be using those in a few years, only they'll be smart VLV's (vertical lift vehicles) and won't be noisy."

We prepare to fast-forward into the future, where FM seems comfortably ensconced…

—Jas. & Anita

REACH OUT AND EMPOWER SOMEONE

MONDO 2000: Let's begin with your scenario of telepolitics. How would that be implemented?

FM-2030: We are already in the age of global telepolitics in that telecommunication impacts decision-making and the idea of "the nation" is phasing out. In a world where societies are welded together by global telecommunication, global economy, global tourism, global job mobility, global infrastructures, and global corporations, the old compartmentalizations no longer work. A whole new trajectory is unfolding. It's propelling us toward larger constructs. The European community is an excellent example, although similar movements are coalescing everywhere on the planet.

Do you remember the May uprising in France during the late sixties? A young firebrand revolutionary named Daniel Cohn-Bendit was arrested and kicked out of France. "Go back to your Germany," he was told. Shortly thereafter he tried to go back to France with some friends. They were stopped at the border by the French customs, who said, "You can't come back here; you're a trouble-maker. This is our France." Cohn-Bendit said, "Your France!? This is not your France. This is *my Europe*! I can go wherever I like." I think increasingly you are going to hear people say, "This is not *your* America, *your* Japan, *your* Soviet Union, *your* Israel, *your* Saudi Arabia—this is *my planet*!"

GOD IS ONLINE

ANITA HOFFMAN: My nineteen-year-old son America heard the idea that instead of social security numbers we would be given a telephone number at birth. Then he said, "But that could be like Big Brother." How do you respond to that?

FM: Telecommunication today has become so massive that it's no longer possible for any government, corporation or group to have control.

AH: But electronic surveillance…

FM: A government agency can manipulate a segment of telecommunication for a while, but no one can any longer control all information all the time. Information will come rampaging through. If it's not global TV it's radio, publications, global newspapers, global travel, computers, videophones, cassettes, VCRs. Voices that were never heard in the past, voices of dissidence, are heard more and more. It works to the advantage of those who oppose the status quo. The status quo always functioned at its best when it was able to control telecommunication. Think of the liberating power of the camcorder in the Rodney King incident.

Big Brother dominated people's lives decades ago precisely because people were born into and lived in authoritarian, insular environments. There were no alternatives or challenges to the status quo.

God was the biggest Big Brother of all. God was everywhere. He even eavesdropped on your most intimate thoughts. You couldn't even play with yourself because you were afraid god was watching.

WHO GIVES A DAMN WHAT BO KNOWS?

I'll respond to the other side of your question which is "what about the technology for eavesdropping?"

AH: I remember back in the sixties the NSA had its satellites keyed in to pick up certain words on the phone. Isn't it possible that—even with millions of people and millions of words—centralized bureaucracies will still have a way of controlling and monitoring?

FM: If the technology of snooping were the only force unfolding in the world, there would be rea-

Illustration by Eric White

son for concern. But that's not how things evolve. One of the dynamics I attempt to highlight in my seminars is what I call the multi-track nature of change—the fact that change avalanches not in one or two areas but in all areas. In the 1950's, if one was a communist or a homosexual here in North America, one had a lot to worry about due to the restrictive nature of society. Therefore the surveillance technology was a threat to people's rights. If you were not straight, if you made love to somebody you were not married to, or if you had "subversive" political ideas you were at great risk of losing your job—even your life!

In the 1990's, even if the government knows that you're a communist, or a homosexual or that you have nine lovers, who gives a damn? It's an entirely new environment. What has helped degrade the old-world restrictiveness is precisely telecommunication.

They're going to develop ever smarter methods of monitoring. But in the long run, it's going to work to our advantage. I don't mind if some telemedical system knows that I am susceptible to some physical malfunction, so long as it doesn't restrict my freedom of movement. These technologies are going to grow more and more sophisticated, but bear in mind that that is not the only track. Other tracks are advancing simultaneously, accelerating us toward an environment where censorship and persecution are less and less likely.

COSMIC COSMETIC SURGERY

M2: Do you have a current scenario for migration off the planet?

FM: Why has it taken so long for massive space inhabitation? The space endeavor itself reflects conditions here on the planet. When we lived in a highly compartmentalized world—divided by nationalisms—our space programs were inevitably rivalries, nationalistic, militaristic.

Now we're talking about a US/Soviet/global effort to stream to Mars, create lunar colonies, and colonies in the asteroid belt. The de-militarization of our global economy will lend a massive gravity-assist, a momentum-swing to the space program.

I'm particularly revved up by the impact massive space inhabitation will have in speeding up our transition from human to transhuman. The moment we lift off this planet, we cease being human. The long-range theme in my current book *Are You a Transhuman?* is that we humans



are specific products of this specific biosphere. And that once we are out in space we're no longer specifically terrestrial organisms. It's just a matter of time before we reconstitute our bodies into something entirely different, something more space-adaptable, something that will be viable across the solar system and beyond.

M2: Something not necessarily carbon-based...

FM: Exactly! The space program is inextricably tied to this powerful evolutionary track that leads to physical immortality and the total reconstitution of our bodies. We're already trans-biological beings because millions of us have bodies that contain non-biological elements—synthetic body parts. We're evolving into something more sophisticated, something more advanced, something transhuman.

TURN ON, TUNE IN, MOVE IN SOME ATTRACTIVE PIGS

AH: What do you think of psychedelics as another method of transcending Time/Space?

FM: Biochemical tools that help us tamper with our chemical brains are, at best, amusing. I look forward to something infinitely more radical—the transformation of our brains into something more manageable and versatile. I wrote about this in my book *Up-Wingers* in 1972. At this stage we know very little about our semi-intelligent brains. But we want to relocate into other kinds of brains. *That's* the kind of leap I would like to see. Everything else is child's play. I have very little to say about this monkey brain of mine. I can't manage it. People like to delude themselves that they have free will, but we're manipulated by biochemical and genetic forces. Nothing short of a massive relocation of our minds will do. It's like living in a mud hut somewhere in Mexico. We decide to festoon it, hang beautiful lights, and move in some attractive pigs—but we're still living in a mud hut. With the slightest tremor the whole thing collapses. That's how our brains are—fragile, awkward, unmanageable bits of tissue. I would like us to mobilize our collective intelligence to format new, modular durable brains that will enable us to translive across All-Space and All-Time.

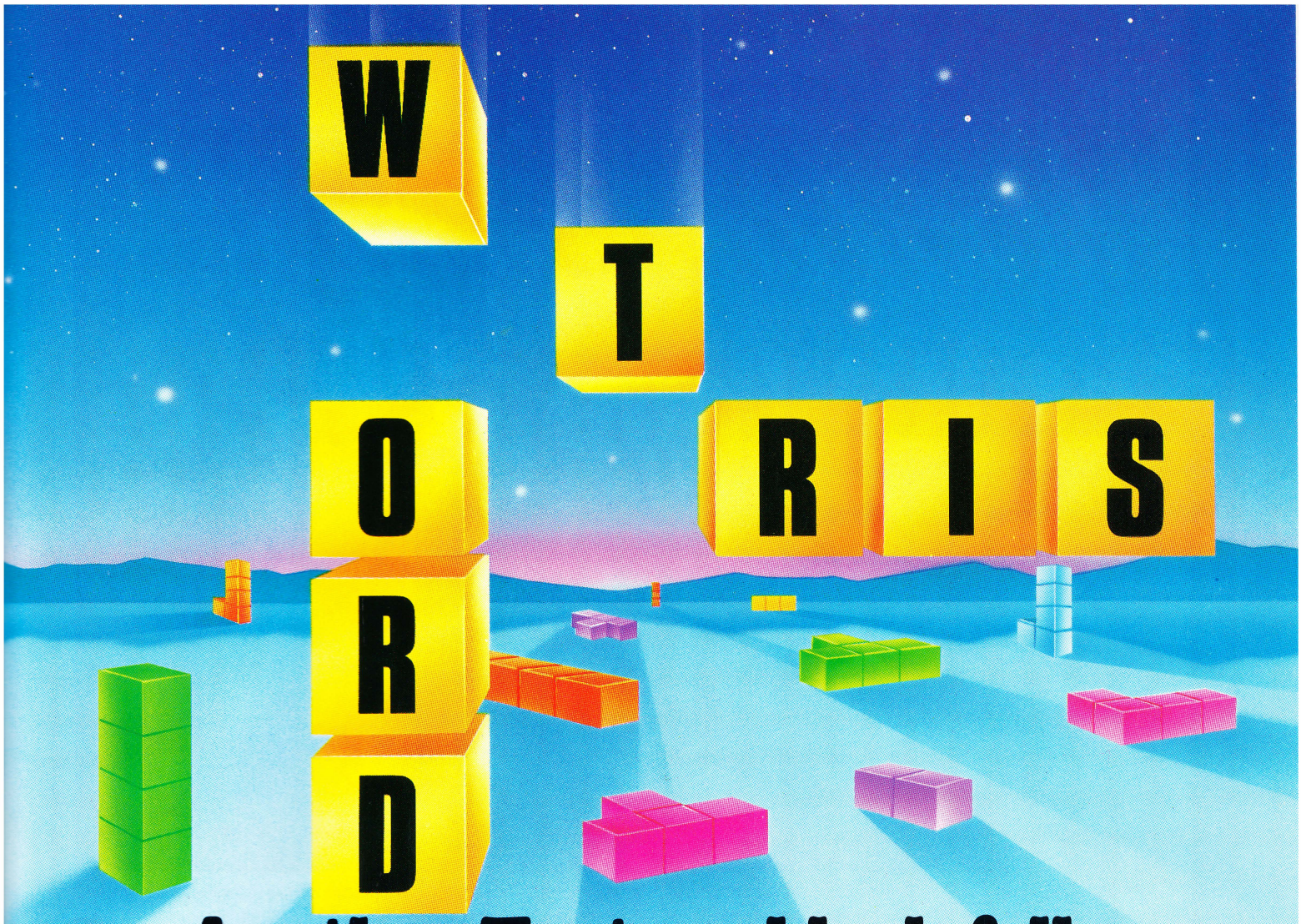
THE TRANSHUMAN BOOKSHELF

M2: Is there a continuity to your philosophy?

FM-2030: There is a cohesion and continuity in my philosophy that is reflected in my books. In *Optimism One* (1968) I suggested that we are evolving into immortal and cosmic beings free of the age-old constraints of Time and Space and therefore, for the first time in evolution, optimism as a philosophy of life makes sense. The central theme of *Up-Wingers* (1972) was that Right and Left are part of the same ideological continuum. They are both predicated on industrial-age realities and are therefore in phase-out. Up-Wing is a new ideological direction beyond Capitalism and Socialism.

In *Telespheres* (1977) I suggested that telecommunication is central to the upcoming post-industrial world. By grafting intelligence and feedback to more and more areas of our lives we are forever transforming the way we live and work and make decisions. In this emerging decentralized, fast-response electronic environment you have direct access to services from wherever *you* are. This is the unfolding world of telegenesis, teleëducation, teleshopping, telemedicine, teledemocracy, telecommunity, etc.

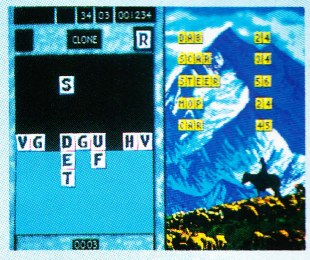
In *Are You a Transhuman?* (1989) I advanced the thesis that transhumans ("Trans") are a new kind of being—a stage beyond the human—crystalizing from the monumental breakthroughs of our times. Trans can no longer be considered specifically human because the premises of biological terrestrial life that have always defined the human no longer fully apply. This book contains 25 monitors intended to help the reader track and stimulate personal growth as we transform from human to something more advanced. M2



Another Eastern block falls.

There's a new 'TRIS on the block. Its name is WORDTRIS. And if you love TETRIS, this latest fast-action, falling block, Soviet game will boggle your mind.

This time the falling pieces are letter blocks. Form them into words and score points. As each block falls, it pushes down the blocks below, producing an ever-changing kaleidoscope of letters where scoring opportunities appear - and vanish - at the blink of an eye.



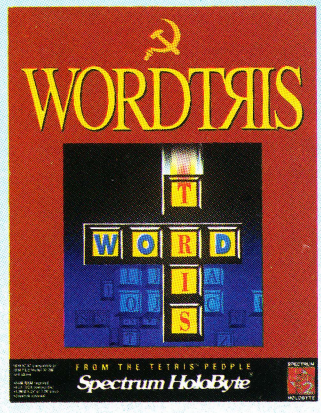
Go for XYLOPHONE if you dare.

Create words horizontally or vertically, but don't put all your E's in one BASKET. Because every time a word lines up, *poof!* those letters disappear, and the blocks below pop up to fill the spaces. So whenever you earn points you stir up the alphabet soup. And suddenly that falling M has no HOME to go to.

WORDTRIS keeps raining vowels and consonants until you've collected enough words to move to the next level, or the well fills up. Of course, each successive round ups the ante as the blocks fall ever faster. But you can choose your difficulty level to match your skills, and select from single player, cooperative, competitive, head-to-head or tournament modes. The built-in 60,000 word dictionary verifies even the most obscure word.

Set the difficulty level at 10 and you'll find WORDTRIS harder to keep up with than the changes in Eastern Europe.

WORDTRIS. Another great game from the TETRIS people.



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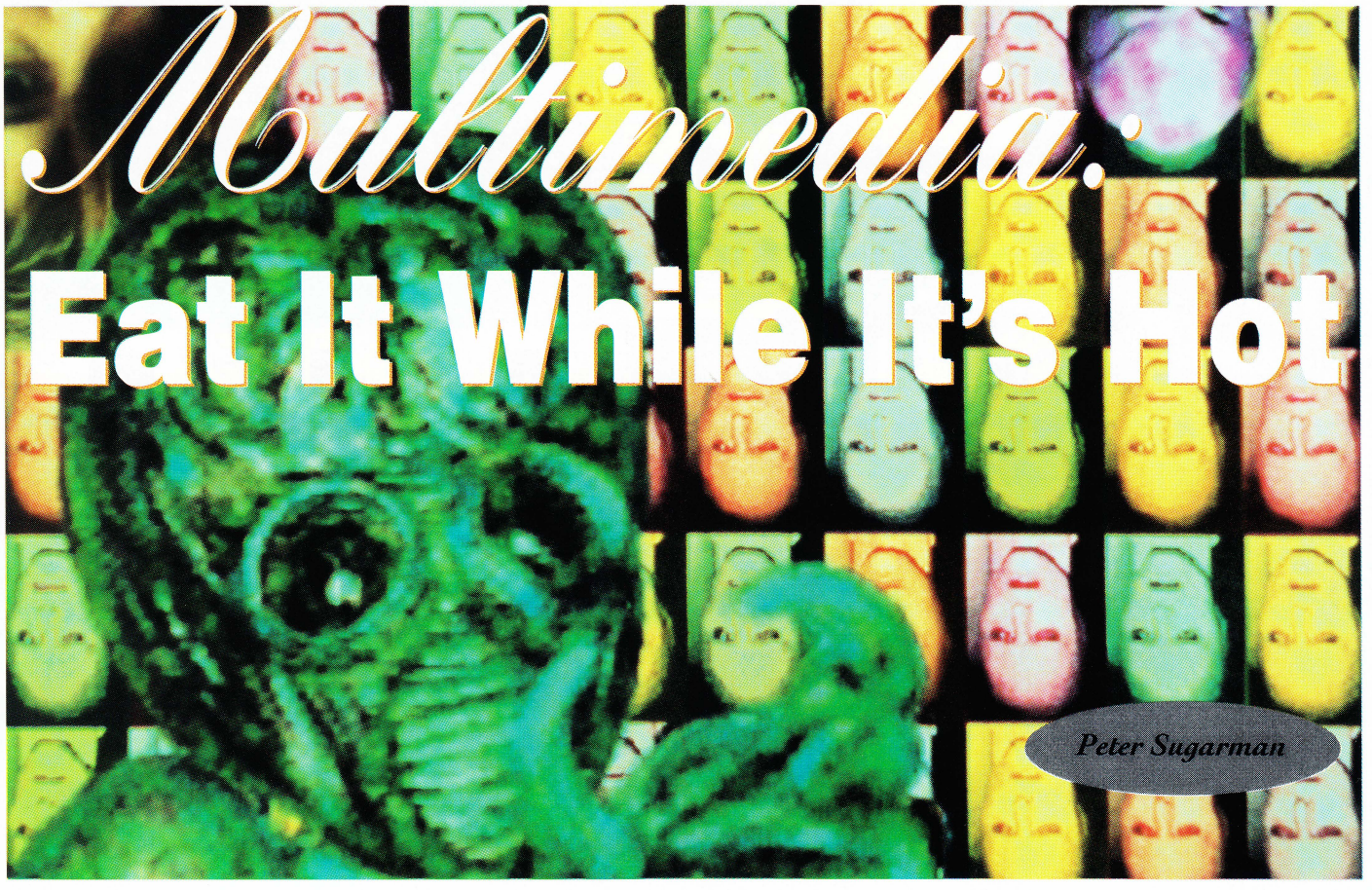
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Multimedia.

Eat It While It's Hot



Peter Sugarman

Sydney Stein, where are you?

Multimedia isn't new, it's our natural state of being. We are multimedia creatures, taking in our world through at least five senses (possibly more for Mondoids).

Even using computer control of media to simulate a multi-channel, multi-sensory experience is nothing new: a training branch of the video industry has been doing this with interactive videodisc (IVD) since the 1970's. This is new? I know lots of people who can't even remember *the 70's.*

—Peter Sugarman

THE MULTIMEDIA TAG TEAM

Ed Mullin of Sony Corporation is fond of saying: "What is multimedia? The definition shifts depending on what the definer is trying to sell you..."

It's a real wrestling match out there, with chips, storage media, greed, and aggressive marketing all pummeling each other for fun and profit. We may not be able to predict who will take whom to the mat, but we can identify some of the more colorful contenders. They break down into several tag teams:

- The Optical Storage contenders
- Smart TV developers (the marriage of computer and television)
- The Compression seekers (the quest for video images over the phone)
- Computer-as-Media hawkers (publishing by, of, and for the computer)

OPTICAL STORAGE

Here's what's getting most of the press these days. You can store great gobs of data on one of these shiny discs. Any kind of data: a shelf-full of books, a day of AM radio, an hour of CD audio, a small bit of full-motion video, a larger bit of not-so-full-motion video... It's up to you to pick and choose among a cornucopia of formats. Optical storage comes in several flavors:

Analog Videodisc—This silver disc is the big brother of all these squabbling media siblings. Available since the 70's, analog videodisc allows computer control of video for the creation of interactive videodisc programs. Analog seems to be the media that won't die. The new kids sneer at this older brother, calling analog storage old fashioned. Horsepuckies. Standing the test of time, this is the only videodisc medium actually in use today. And then there's the Baskin Robbins of optical storage...

The Compact Disc—There are *so many different* flavors of these lil' silver discs. They include:

CD Audio—CD Audio was the fastest adoption of a new technology in history. It killed vinyl.

CD+G—basically CD Audio plus graphics. Titles in this format have been published for several years, but are still waiting for the hardware that will show them on your TV.

CDV—a format which hasn't caught on, but refuses to die—basically a "45 single" analog videodisc.

CD-ROM—holds up to 550 MB of digital information. CD-ROM is driving all the fevered multimedia hoopla. It's portable, dense enough

to hold big data, and able to share, to some degree, the economies of scale afforded by it's predecessor, the audio CD. The only hang-up is needing a CD-ROM player to access the information. Still, costs of these units are dropping rapidly as the technology battles its way onto the business desktop.

CD-I—Announced prematurely five years ago, **CD-I** stands for Compact Disc Interactive. Can you say "couch potato?" This is multimedia for the home. It won't look like a computer—more like a stereo component, and will play on your TV set. This will teach us old folks what young Nintendoids have known all their lives: touch the TV and the TV touches you. Due imminently, this tech could finally put interactive multimedia in the hands of the masses ("couchware," here we come!).

CD-ROM XA—CD-I will be able to do tricks that plain vanilla CD-ROMs can't. **CD-ROM XA** (for eXtended Architecture) will bridge the gap. By publishing in CD-ROM XA, programs will be able to run on either CD-ROM or CD-I systems.

CDTV—Commodore Computer stole some of CD-I's thunder by bringing their competing product, **CDTV**, to market first. At the Microsoft CD-ROM conference, this unit was described as the "Trojan Horse" which will insinuate itself into the lives of the computer illiterate. It's essentially an Amiga computer cross-dressed as a mild-mannered entertainment device.

All these different CD-ROM formats are waiting for new and better compression schemes to permit them to show full-screen, full-motion video. In the meantime, they make do with text, graphics, sounds, animation, and video which is either smaller than full screen, or slower than 30 frames per second.

DVI stands for Digital Video Interactive. Developed by Intel (the same fun guys that put the guts in IBM's CPU), this technology is aimed at the professional market rather than the living room. Many new media savants find **DVI** in competition with CD-I. Probably not, as the target markets differ. **DVI** is not so much a different flavor CD—more a different way to store the information onto disc.

OTHER BATTLES

• **Smart TV's**—There are other arenas, besides optical storage, where science and the marketplace are spoiling for a fight. As we all know, computers have gone from room size to palm size. As soon as computers start ducking inside our appliances, the Smart TV will move into our living rooms. It'll be your media agent, taking notes on your viewing habits, taping what you missed, even when you didn't bother to find out what was on. Your interests will be its commands. Besides the improvement in the human/machine interface, program quality will also improve because of the digital signal. And, you'll be able to manipulate the pictures and sounds to your heart's delight. Today's football widows have given us a taste of what's to come.

• **Video Compression**—The search for new and better ways to compress video data is the commercial equivalent of the race to the moon. The stakes are tremendous. When video shrinks to fit inside a phone cable, it'll be a whole new ballgame. Why buy a movie if you can get it downloaded into your Smart TV? Every film in the vaults of major Hollywood studios could be a phone call away. The mind boggles.

• **Computer Publishing**—Actually, we don't have to wait for our computers and TVs to mate and breed Smart TVs. Often overlooked is the fact that computers themselves represent a new medium, a new platform to publish on. Using the computing power of the display vehicle, these documents can respond to the user, and in that interaction, present a new experience with each use. Touch the Computer and the Computer touches you...

WHAT WILL SURVIVE?

The answer is simple. Nothing. Should this inhibit your adoption of the new media into your life? Of course not. If you have an itch, scratch it. If multimedia can help you solve a problem at work, or provide home entertainment which encourages something better than legume emulation, go for it. Don't worry about whether there will be a newer, sexier, faster technology waiting in the wings. *There always will be.* If you wait for it, you'll never get the pleasure from what's here for you now.

OK, so what can you start with, here and now? A basic multimedia system that will probably age more gracefully than you will consists of a Mac LC and a CD-ROM Player. Hypercard 2.0 and facilities for digitizing sound both come bundled with the Mac. When QuickTime ships, you'll be able to show digital video on the LC using software only, no expensive hardware add ons. Amiga systems are also worth exploring as they pack a lot of multimedia computing power at reasonable cost.

Remember that if you buy a technical solution, one that helps solve a real problem for you today, it'll continue to help you solve problems. Even while new solutions come along and grab the headlines, it'll keep chugging away, provided the product was a good one to begin with. Don't wait for the perfect product. It's a moving target, so you might as well give it your best shot.

What will survive? You will—hopefully with your sense of wonder intact. It's a strange, terrifying, and miraculous world.

Resources

There are a growing number of magazines that cater to the multimedia market. Perusing them should help you make intelligent choices when purchasing a multimedia system. My favorites are:

Verbum: Journal of Personal Computer Aesthetics. PO Box 12564, San Diego, CA 92112-3564, $24/4 issues. This magazine has developed right alongside the media and art tools that it covers. It's slick, loose, and arty. Kind of a *MONDO 2000* for the computer graphics crowd.

Multimedia & Videodisc Monitor. $277/year. PO Box 26, Falls Church, VA 22040-0026. A monthly corporate report that stays on top of multimedia innovations and innovators.

New Media. $36/year. 901 Mariner's Island Blvd., Ste. 365, San Mateo, CA 94404. Subscriptions from PO Box 1771, Riverton, NJ 08077. The new kid on the block. After 6 issues they have proven to be a magazine worth keeping an eye on. The hippest formatting of the "industry" magazines.

Computer Pictures. $40/year, Bimonthly. 701 Westchester Ave., White Plains, NY 10604. "For creators and producers of graphic and multimedia presentations." The earliest; durable, more mainstream. M2

MACHOVER'S HYPERCUBE



Photographs by Peter Menzel

The Experimental Media Facility—affectionately known as "The Cube"—at the MIT Media Lab's Music & Cognition Center is where you'll find some of the grandest and most creative exploration of 21st century entertainment technologies. Thirty-seven year old electronic composer Tod Machover is Director of The Cube and an Associate Professor of Music and Media.

Within the vertical confines of this cavernous, windowless facility, Tod combines his rich knowledge of classical music with the art of human-computer interface. The result: new sounds previously impossible to create, and compositions beyond the limits of traditional performance.

—Jas.

If things are too obvious, it's elevated elevator music

MONDO 2000: I know you have a famous father. Say something about the influence of your parents on your work and development.
TOD MACHOVER: My dad has been an important force in computer graphics. [*Carl Machover is one of the true pioneers of the field and a passionate evangelist.—Ed.*]. I watched his delight in helping new technologies be born, ones that he was convinced would help people be more effective and creative by being able to visualize, and therefore *conceptualize*, complex information.
M2: And your mother?
TM: She was a pianist and a sly pedagogue who believed in teaching music through "playing." We had all sorts of games around that she had concocted to help us (me and my two younger sisters, and a couple of neighborhood friends) learn. One of the earliest I remember was what she called the "floor staff," which was a giant treble and bass clef made out of rubber that took up our whole living room floor. We used to play bean bag games and Simon Says on it to learn our solfège.

My mom used to also invent special music creativity games. One I remember involved a few of us kids having fifteen minutes or so to go around the house and each find a "non-musical" object that we thought made a beautiful or interesting sound—and this is when we were three years old or so! Then we would compare our new "instruments" and discuss the quality, expressivity and performability of each object. We would make up a sort of group composition, and discuss ways of making it better. As homework, we would be asked to invent our own notation, to remember the music, and thus have a tool to conceptualize what we had done. Great mental training! From this I learned that art was the most serious and important thing that a human could do. And the most joyful!

SESSIONS WITH MENTORS

M2: Describe the influence on you of Roger Sessions and Elliot Carter, your two composition teachers at Julliard.
TM: When I first went to Julliard in 1973—after one year at U.C. Santa Cruz, and another studying composition and playing cello in Florence, Italy—I would say that I was firmly esconced in the European tradition of "serious classical music," this in spite of having played a lot of rock music in high school. My music at the time was lyrical, expressive, and—it seems to me now—fairly melancholic and yearning. I studied first with Roger Sessions, then an old man, and the most prominent link to the European tradition of Wagner and especially Schoenberg. Sessions used to smoke his pipe—or rather shove tobacco in it—and speak slowly and deliberately, much too slowly for my hyperactive temperament. However, he was very perceptive at helping me realize what was special about my own talents and taught me to be able to criticize my own work. But my style of composing quickly evolved after getting to Julliard. My music became much more experimental and I became very interested in complexity and the limits of perception. With these ideas Sessions couldn't really help me, so I went to study with Elliot Carter, who I considered then, and probably still do now, the greatest living American composer. Carter wasn't as conscientious a pedagogue as Sessions had been, but he was an incredibly lively intellect, and had profound ideas about harmony and rhythm. But it was his thought about complexity which attracted and fascinated me most.
M2: Did you start working with computers during this period at Julliard?
TM: Well, as you probably know, Julliard was, and still is, about the most conservative place to study music. And the most stultifying. But, incredibly, I did start my work with computers there. With Carter, my ideas about musical complexity developed quickly. They were stimulated by the music of Charles Ives and by Carter's, but also by what I considered to be an honest reaction to life in late 20th century America, and especially New York City. I saw incredible diversity and the most wrenching contrasts—especially of social well-being— constantly juxtaposed in the most painful ways. I looked at my music as a way of representing these juxtapositions as well as the search for a way out. I experimented with multiple streams of music happening at the same time, often of totally different character or content.

This music became harder and harder to perform by live musicians. The turning point was a *String Trio* that I wrote in 1974, in which not only are all three musicians constantly playing in different tempi, but each player is either slowing down or speeding up at any one time, all differently. The "consonances" in the piece were achieved by having moments when the instruments line up, come into synch, and actually play a chord together—not a very frequent occurrence! Now, as you can imagine, this piece was almost impossible to perform (although I did charm a group into learning it finally in 1977). But I was dying to hear it. So I went to the guy who ran the Julliard electronic music studio (a pathetic place which basically no one was interested in at the time) and convinced him to teach me how to program computers so that I could generate this piece synthetically and listen to it. He taught me FORTRAN, and over a period of weeks I wrote programs to realize the work, typing the data on punch cards (no text editors then!!) and having the thing calculated and put on magnetic tape at the CUNY Graduate Center. Little by little I worked out the bugs and finally had a computerized performance of the piece. It was actually exhilarating to listen to, and I remember that Elliot Carter was pretty impressed. I continued my computer music studies at MIT and at Stanford, and ended up going to work at IRCAM in Paris in 1978, where I stayed for seven years.



BOW GESTURE

"Gesture" is what musicians call the nuances of performance that are unique and subtly interpretive—that come from plucking a string or stroking a bow. Gesture is what most electronic music lacks *utterly*.

Tod Machover's "hyperinstruments" are designed to augment sound with such idiosyncratic nuances as to give it human expressiveness and a rich, live sound. The hypercello in *VALIS* was the first expression of this kind of augmented virtuosity.

What makes the hyperinstrument concept different from the audio exciters, sonic maximizers, octave multipliers and effects processors we all know?

Hyperinstruments allow for the *intelligent* analysis of MIDI signals, which in turn create new and subtle additions to the performance.

Take a traditional instrument—say, a 9 1/2 foot Bösendorfer Imperial Grand—and hook it up through a light sensor monitor to send digital data to a computer. Now you've got a MIDI Grand. Now equip *that* with a set of solenoids under the keys. When the digital data is played back, they respond to duplicate the original performance right down to the accentuation. So far you've got the ultimate player piano.

But it doesn't just replicate timbre, tone, rhythm and phrasing—it memorizes these data and allows them to trigger other musical events. The primary performance instrument—the piano or cello—is linked to the hyperinstrument—a series of Lisp-based programs running on Mac II computers.

The "intelligent analysis" of the data stream and resulting modification of the music go beyond simple commands to encompass every subtlety of performance and emotion.

Extrapolate from this and you've got an instrument that can be its own "smart accompanist."

Machover and colleagues Joseph Chung, Jonathan Harvey and Barry Vercoe want to take it further still. They are committed to applying their hyperinstrument research to real-life concert settings.

The essential problem in multimedia is that each medium has its own language. Hooking them up does not necessarily result in meaningful or aesthetic interactions. Machover and friends are focusing on the interface between different components and languages and placing a high-powered computer with a flexible software environment at the nexus.

In this extended environment, the mapping between musical input and various forms of output is entirely software-definable. It combines basic MIDI and realtime facilities of Hyperlisp with high-level structures and user-interface tools. Ultimately this will yield a new kind of Synaesthesia in Realtime: a veritable 21st century digital *Gesamtkunstwerk*!

REALTIME BAUHAUS

M2: Would you say a word or two about your experience at IRCAM?

TM: IRCAM (Institut de Recherche et Coördination Acoustique/Musique) is the music part of the Pompidou Center in Paris, run by the French composer and conductor Pierre Boulez. When I was there, it was the most exciting place in the world to experiment with music and technology. I was lucky in that I arrived when the Institute was just starting and got in on a lot of its conception and planning. I also got to work closely with Boulez, which was interesting because he has very high standards, and is a fantastic musician with a brilliant intellect, although he falls somewhat short as a human being.

At the time, IRCAM was building the world's first "real-time digital synthesizers," computers designed especially for music, fast enough to be played like instruments. I became the first musician to be associated with these, and became part of the team that did the initial experiments with gestural control of computer music, large-scale sound storage, and live timbral transformation of traditional acoustic instruments. Also, Boulez named me Director of Musical Research, and—at age twenty five—I found myself in charge of determining music policy for this huge institute, and able to invite musicians and researchers from all over the world to participate in projects. IRCAM is not now as exciting as it used to be, but at the time it was a kind of Bauhaus for experimental music, and a very exciting place to be indeed.

Music pulls together parts of the brain

M2: What is your opinion of the current state of electronic music?
The MIDI boom has moved computers and electronics out of the research institutes—which were hopelessly elitist—and into the mainstream. The up-side of this development is that far more composers and performers have had a chance to experiment with the medium in the last few years, coming up with a wealth of ideas and generally pushing the field forward. The down-side is that, just as there is a cost-for-performance trade-off in the commercialization of complex music technology, the same thing seems to have happened to the music itself. Composers seem to be accepting the lowest common denominator pop-music aesthetic that their equipment was designed to produce, and are not interested in looking behind the factory presets to really create and invent with this new technology.

that aren't supposed to work together

Current electronic music has become homogenized and trivialized. It has lost the risk-taking, experimental, exciting spirit that characterized the field, say, twenty-five years ago. I often find that my students at MIT—bright as they are—seem to think that electronic music began with MIDI. I spend a certain amount of time making them aware of the truly revolutionary work of Stockhausen, Berio, and Cage—to name a few—work which, by the way, would often be impossible to reproduce on current commercially available technology!

THE PITCH IS LOW AND INSIDE

M2: Have you ever imagined sound beyond three or four dimensions? I called it "hypermusic" once when I was talking with physicist Saul-Paul Sirag. Perhaps there are levels of action and interaction affecting us that are beyond our perception.
TM: You mean from an acoustic point of view?
M2: I mean a sound model. Something analogous to a physical model like the hypercube.
TM: I know that there are sounds beyond our perception. They're either too low or too high, too fast or too slow. We're not aware that we perceive them, but we do. They can be extremely powerful. One of the best examples of this is incredibly soft, very low sound—too low to be processed as a pitch. I remember when John Cage wrote a piece for the Boston Symphony. They hated it, but it was a wonderful piece of music. He'd asked them to build a special set of marimbas. It was a marimba with four notes, and the notes were way off the scale. They were like five Hertz, really low. Each note was as big as a human being. They were made out of wood and they had these big, gong-like things to hit them. While the orchestra was playing, every once in a while you'd see someone hit one of these marimba notes. You couldn't hear it as a sound, but you could feel it. It was very gentle—but you could feel a little kick in your stomach, feel your organs vibrating, and I was standing in the very last row of the last balcony of Symphony Hall! Vibrations that are imperceivable as notes are important in music and should be incorporated.

LISTEN TO THE BRAIN LISTENING

This whole question of what is perceived as music, what is perceived as sound, what is perceived as vibration is one of the next big frontiers. The boundaries between music and noise and vibration are usually thought of as distinct, but they won't be for very long. So, I don't know if that's truly another dimension, but in a certain sense it is. The way it works on our perception, the immediacy of it, and the physicality of it will lead to some new sound experience.
M2: I'm also thinking of shamanism, and the shaman's use of voice to induce trance states, using their voice to navigate the neurocartography...
TM: What interests me now is how music gets through to us in a more general sense—how we listen and why and how we react to the sounds we hear. I'm currently working on an opera with Marvin Minsky. We're going to build a building in Japan. The opera is going to be about how we listen to the opera. It will be like entering a brain,

—storytelling, formal comparison,

although it's not a science exhibit but more like a "theme-park ride" opera! Hopefully it will make people aware of what's going on in their minds while they listen to music. The point is to make the music reflect back on your own thought processes—to use music as a tool for looking into your own mind.

I'm hoping to create an environment where you physically walk through and climb on all sorts of structures so that you *see* the piece being assembled as you move through the environment. Hopefully you will develop a progressive sense the longer you stay in this environment. I hope it will open a little window into your head. I believe, as Minsky does, that a lot of what we usually think of as emotion and spiritual feeling is connected to our mind. So I'm interested in picking apart the mind right now... and in stimulating it.

and gut-level pain

You couldn't hear it

A LITTLE PINK RAY TOLD ME WHAT IT ALL MEANS

M2: Let's get on to the projects then. Describe *VALIS*, your opera in Paris. How did the work of Philip K. Dick influence you?

TM: The Pompidou Center asked me to work on a project combining image and sound. I decided to do an opera. I wanted technology to be a major element in making the opera—from the scenery to the staging to the music. I also wanted the opera to be about technology. I'd read some Philip K. Dick, but I'd never read *VALIS*. I decided to look through some of his books for ideas. I happened upon *VALIS* in a Parisian bookstore. I read the liner notes and the first few pages, and it not only resonated, but it was just what I wanted to work on.

FLORA BY WIRE

M2: Describe your collaboration with Yoichiro Kawaguchi on his piece, *Flora*.

TM: Well, we didn't actually meet until the piece was done. Marvin Minsky and a Japanese art administrator had sent Kawaguchi my music, and he was very interested in it. In April of '89 I got a fax from Mr. Yoshihiro, the main producer for special projects at Fuji Television in Tokyo. He said that Kawaguchi was working on a new piece that would be shown at SIGGRAPH '89 that summer. He wanted to know if I wanted to collaborate on it. The first thing he did was send me a lot of his work. I got a feeling for what he'd been doing during the last few years, things like "Cosmos" and "Metamorphosis."

as a sound, but you could feel

One of my obsessions has always been of living in a world which is becoming increasingly more complex and fragmented—where we have access to more and more information. There are three different levels of reacting to this. The consumer level is to buy loads of CDs, change channels, and so on. You don't have to do any work on your own. It's easy to understand all this information just by letting it into your house. That's a frightening way of facing the situation because it's superficial and dishonest. We'll find ourselves more isolated. The aspects of Virtual Reality which free individuals from trying to understand or communicate with one another scare me quite a bit. I think that every system we build and every art form we create should allow us to reach out to other individuals.

The second level of reacting to all this complexity is to wake up and say, "Oh my god, this is so fragmented and complex I don't know what to do!" This entails being initially overwhelmed by the totality of the information, but mistakenly believing that it can all be absorbed and understood in a quasi-mystical sense. Someone in this situation can write thousands of pages of text trying to theorize how bits of information theory, and psychological and religious theories could somehow fit together into a coherent theory of the universe. A maddening and fruitless pursuit!

The third reaction to the world's fragmentary complexity is to try to dig deeper, to find principles of similarity that begin to reveal the profound connections between things. This, I believe, is the great ethical task of our times, and is the question—and quest—posed by *VALIS*.

I asked him to send me images from the new piece, even still images, so I could get a feeling for the quality of the piece. And I needed to know the length, because a lot of his pieces are very sectional. Most of my music is about some kind of progression. It usually involves continuous change. When I first think of a piece of music, I begin with the overall shape and the process of transformation, and then I get down to levels of details. With Kawaguchi's pieces, I always get the feeling that his idea of development is more like French music—a system set in motion like a giant, unperturbed process. I think you could change the order of a lot of his pieces and the overall feeling wouldn't be enormously different.

My music doesn't work that way. I like to be respectful, so I didn't want to write music that would go against his images. I wanted to take what was in his images and draw something out that would reflect their qualities; lend them a certain shape that they might not have had otherwise.

a little kick in your stomach,

ALGORITHM AND NOISE

As it turned out, *Flora* is one of my very favorites of his. It has a subtle gradation of color, a water-color feeling. What I most admire in his work is his combination of abstract, non-representational forms with algorithms that give the forms a live, organic feel. They don't relate to anything you've seen in nature, yet they're distinctly *alive*. I wanted to get that feeling in my music. I wanted to combine a familiar, organic feel with something distinctly invented, abstract. In my case, the familiar part was the human voice. I wanted it to be close to a real voice, but I wanted to manipulate it in order to transcend the limitations of the natural voice.

feel your organs vibrating

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—Kevin Kelly, *Signal: A Whole Earth Catalog,* 1988

I decided that I didn't want anything too literal. I didn't want the music to be absolutely synched to the image. But there is a connection. If you start the image seven seconds after the music you will find that each scene change in the image corresponds to one of my variations. The music itself has a very gradual build-up—a sense of continual development. It gets more and more complex, and comes to a climax, and then unwinds and goes back to where it started. Kawaguchi didn't hear a note of it until we did the première at SIGGRAPH!

M2: Do you think you might work together again?

TM: I'd be interested. I'm very interested in image and sound together. The Paris production of *VALIS* incorporated video and computer graphics. I'm working on visuals now for this brain opera with Marvin [Minsky] which will involve computer graphics and images. So I'd love to do another project with Kawaguchi. But next time I'd like to sit down and say, "What shape should it have? What kind of feeling do you get from the music? What kind of feeling do you get from the images? Are there actual transformational structures that should be reflected in the sound and the image?" The way I like to collaborate is to toss around a lot of ideas at the beginning of the project, even if you end up throwing them out while you're working. It's nice for artists to start with shared basic ideas and then to go in their own directions as the piece progresses. In a truly fruitful collaboration, the end result shows that the artists were intimately connected after all, and the final product becomes clearly more than the sum of its parts.

THE LUMINOUS HYPERFUTURE

M2: What are your most recent projects and plans for the future?

My most recent project is a piece called *Being Again Again...* for hypercello. I composed this for Yo-Yo Ma, and he premiered the piece at the Tanglewood Festival this summer. Part of the excitement of this project was extending hyperinstrument technology. For example, we had many sensing devices especially built to measure the refined and sophisticated technique of cello performance. I plan to forge ahead with this line of work in my next two projects, a piece for hyperviola and orchestra (for the Los Angeles Philharmonic) and one for hyperviolin and orchestra (for the St. Paul Chamber Orchestra).

As for my other projects, I find that I seem to be moving in two different directions at once. With the *Brain Opera* I intend to move inward, exploring the functioning of the mind with as much precision and detail as I can. At the same time I'll be working on another opera with theater director Peter Sellars in which the lens of observation will be pointed in the opposite direction. The piece will be about the ability of the individual to make a difference to the *outside* world, in a personal and political sense.

Basically, I believe in the possibility of synthesis while embracing and rejoicing in the crazy diversity of our world. It is quite possible that five or ten years from now I will realize that these two opera projects actually stem from some common impulse that is concealed from me now. And if past adventures are any guide, once I discover such coherence, it will only serve to provide the platform for new questions, new experiments, deeper feelings of confusion, and even a moment or two of luminous understanding. M2

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edited by Michael Benedikt

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An Acid Take on Camille Paglia

Sexual Personae

Art and Decadence from Nefertiti to Emily Dickinson

by Camille Paglia,

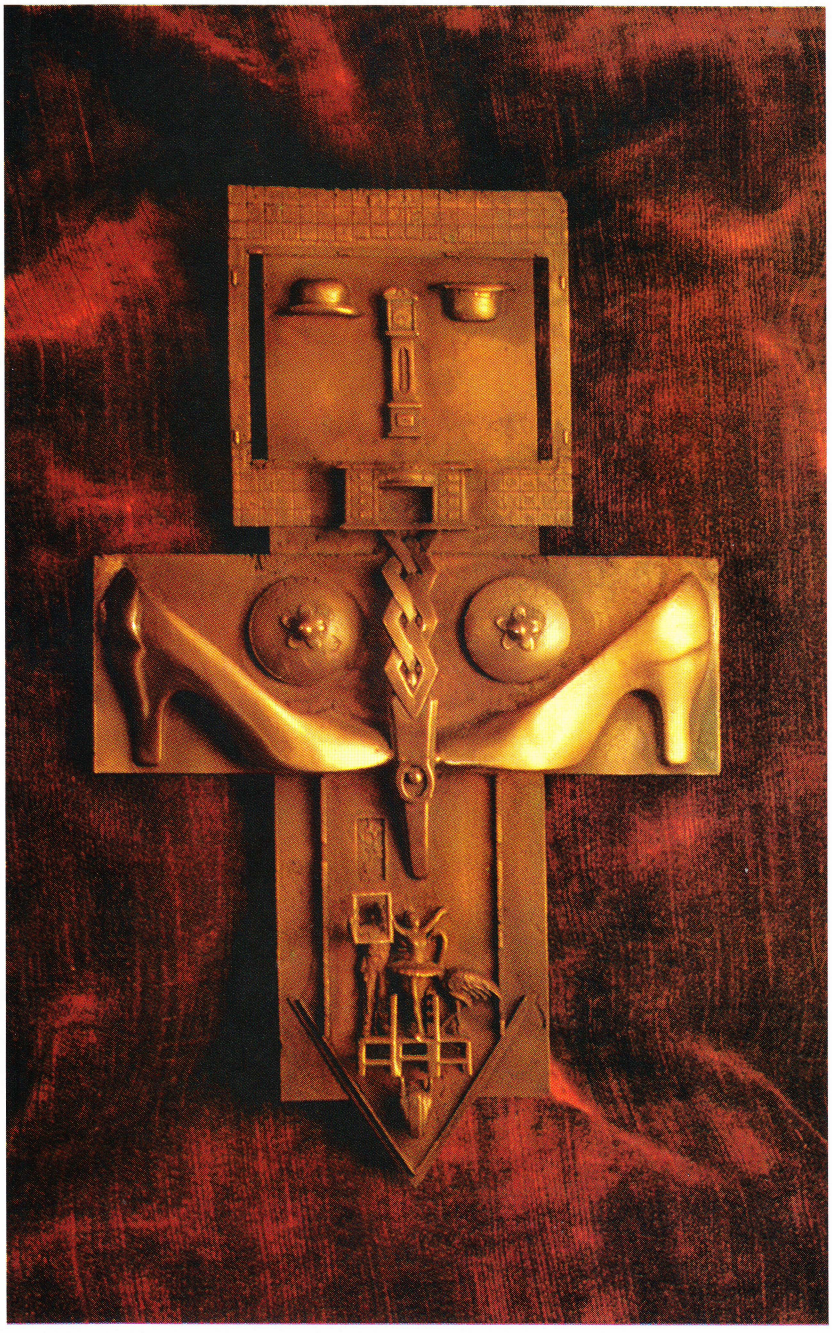
Yale University Press, 1990

718 pp., some illustrations.

"A very popular error: having the courage of one's convictions; rather it is a matter of having the courage for an attack on one's convictions."

—Friedrich Nietzsche

Gracie & Zarkov



bronze sculpture by Joel Peril



Ever see one of those *Aufklärungsfilms* of the late Sixties? A white-coated, silver-haired *Doktor* would appear on the screen and in portentous Teutonic tones explain to you that the movie you were about to see was of vital scientific import because of recent discoveries in anthropology and psychology. The main title would appear: "Inge Goes to an Orgy." Then you would be treated to a standard hard-core porno film.

Imagine *Sexual Personae* as a movie. An attractive Italian-American woman in short hair and academic robes explains to you very solemnly that she is going to reveal the secrets of Western Culture as elucidated by the Cambridge School of Anthropology. The camera pulls in close as she whispers huskily: "The amorality, aggression, sadism, voyeurism and pornography in great art have been ignored or glossed over by most academic critics." As the camera pans back, she cries: "My method is a form of sensationalism!" She tears off the academic gown to reveal a black leather corset and thigh-high boots. The camera zooms in on her pale face and ruby lips, revealing the points of delicate fangs. The main title comes up: "Lesbian Vampires from the Chthonian Swamp!" What follows is a hard-core porno/slasher movie.

Just kidding. But seriously, folks, after 700 pages of Camille Paglia's clotted prose, it's hard to take this book as a Great Work of Scholarship. It is, however, an original exploration of the dark side of Western Literature and Art by an insightful and brilliant post-modern medievalist. Outside the academic cloister, she would be one of the great rock critics of our day.

Professor Paglia has made a splash in Acada–media for her post-modern, post-feminist, anti-deconstructionist and politically incorrect positions. But her methodology remains tainted by the deconstructionist's preference for rhetorical hokum over substance. Sensationalism, stylistic flash and emotional manipulation of the reader crowd out rigor of thought.

Her theory of sexual personae attempts to explain Western Civilization in all its greatness and horror. It fails. Paglia is essentially pre-scientific and pre-Enlightenment in outlook. The organizations she most resonates with are the Roman Catholic Church and the University, the only living medieval institutions in the West. Her obsession with hierarchy, with sexual dominance and submission, is a characteristically Catholic and academic neurosis.

Her polarization of Nature, Sex and The Feminine versus Society, Techne, and The Masculine is just medieval dualism in post-modern guise. Her desire to *épater* the feminists and conservatives leads her to grossly overstate her case. Her theory of sexual aesthetics based on an assumption of universal male sexual anxiety is as preposterous as a theory of feminine psychology based on penis envy.

She's extravagant in her admiration of masculine accomplishment. Yet she's oddly blocked from successful sexual connection to real men. Like the feminists she battles, she is obviously personally unhappy about being female. Her awe of the male engineer has more to do with her lack of technological training than it does with her sex. She declares that "Male urination really *is* a kind of accomplishment, an arc of transcendence." This puerile metaphor for Western history will no doubt piss off conservatives and feminists alike. However, it shrivels to a small joke when we recall our own Goethe and Mahler-inspired vision of the eternal feminine luring the male to perfection within a DNA spiral of coupled sexual energy.

Paglia forgets her own debt to science when she says "The most effective weapon against the flux of nature is art." Art never cured disease, brought water to the desert, or "freed women from drudgery and danger." The capitalist and scientific revolutions of the last 200 years pushed the humanities into the margins of Western thought. From a post-modern perspective, Art and Literature are sideshows. They have moved from *Kunst* and *Kultur* to upscale entertainment. Romanticism and Decadence are fueled in large part by the frustrations of artists finding themselves outside the pale of science and capitalism.

Paglia's first chapter reads like an hysterical anthropological rant on the rise of the West, rather than the groundwork for a theory of artistic criticism. "...Sex and Nature as brutal Pagan forces" is an artistic statement, not a scientific one. "Western greatness is unwise, mad, inhuman." Does this mean that the uniqueness of Western Civilization lies in its pathology? While there *is* a uniquely Western pathology, a focus only on the Shadow of civilization can lead to confusing the achievements with the pathology. Is the Inquisition a "pagan irruption" into Catholicism or the result of the twisted sexuality of a repressed and celibate priesthood?

Her search for the archaeological shadow of paganism fails to distinguish between pre-Christian, anti-Christian and post-Christian Paganism. This leads her to a romanticized Catholic fantasy view of Paganism that overemphasizes the violent elements. More importantly, it reflects a lack of pagan religious experience or direct experience of ecstatic states. Robin Lane Fox's book, *Pagans and Christians*, a recent archaeological exploration of the triumph of Christianity, sheds light on the whole spectrum of practice of classical pagans.

Nietzsche developed his concept of the pagan tension of Apollonian versus Dionysian forces to explain Attic tragedy. Dodds applied it to all of Greek civilization. Paglia attempts to make it a general metaphor for Western thought. As a tool of academic literary criticism, she makes the old warhorse dance. But for *MONDO*'s technoerotic voluptuaries, it's as useful as trying to explain a supernova with the Ptolemaic astronomical system.

As for her anthropology and psychology: Nietzsche, Freud and Frazer were great pioneers, and invoking them is sure to provoke



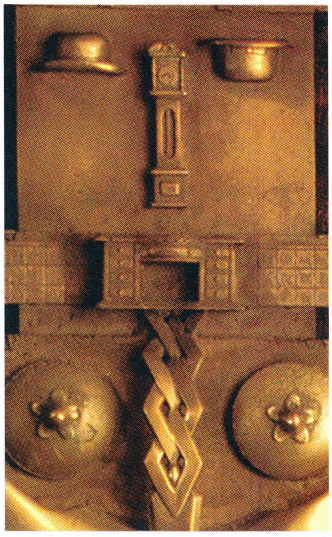
"Male urination really is ...an arc of transcendence." This puerile metaphor for Western history will no doubt piss off conservatives and feminists alike

the politically correct. However, her "...highest ambition... to wed Frazer to Freud" is hardly *modern* anthropology, much less po-mo. Jung, Reich, information theory, neurophysiology, cybernetics, psychedelics, and evolutionary epistemology all fall outside her ambit.

The primate biological drive that produces the male preoccupation with status and hierarchy is much weaker, on average, in females. A female view of sex relations might include concepts such as receptivity, reciprocity, and responsiveness. This never occurs to Paglia. She tries to convey the power of female sexuality, but loses it in hysterical mock-male rants about blood and swamps. Projecting her personal emotional discomfort with being female onto all of Nature weakens her otherwise persuasive case about the benefits of technology. This surfaces in such comments as "Female genitalia are not beautiful by any aesthetic standard." Maybe yours, Camille; perhaps you spend too much time hanging out with male homosexuals and academics, and not enough with engineers and gardeners.

These criticisms notwithstanding, her emphasis on the perverse, the pathological and the decadent makes for a compelling attack on the censorious academic patriarchy. Paglia is in the great tradition of Euripides, Nietzsche and Freud, a tradition that includes books such as Walter Kendrick's *The Secret Museum*. Her "aggressive Western eye" sees into the Shadow with originality, clarity and sympathy. She almost understands how the West's attempt to individuate and control underlying biological forces results in the panoply of weird sexual personae she catalogs.

There is something worthwhile in every chapter, but you may need to winnow it from the personal projections and prolix sensationalizing. If you get frustrated, skip to the next chapter and come back later. For Mondoids on the run, we'd like to highlight the *Good Parts*:



SPENSER AND APOLLO: THE FAIRIE QUEEN

Paglia cuts through the thicket of "unreadable commentary" to uncover a world of cinematic sensationalism, "an encyclopedic catalog of perversions... not only rape and homosexuality but priapism, nymphomania, transvestism, and transsexualism... [and] a recurrent motif of sexual bondage." This sure makes a Renaissance epic sound like a fun read! Makes us wonder about C.S. Lewis, though.

SHAKESPEARE AND DIONYSUS: AS YOU LIKE IT AND ANTHONY AND CLEOPATRA

First Paglia neatly categorizes the problematic Titus Andronicus: a black comic parody of Spenser, sick and funny like a George Romero movie. The rest of the chapter amusingly demonstrates that "multiplicity of personae... is a major principle in his plays, just as multiplicity of language is his poetic style." There is a delightful discussion of Rosalind's "dazzling series of impersonations: we see a boy playing a girl playing a boy playing a girl." This is followed by a truly original alchemical and astrological interpretation of the multiple personae of Cleopatra, including comparisons to Tina Turner and Auntie Mame. Razzle-Dazzle!

RETURN OF THE GREAT MOTHER: ROUSSEAU VS. SADE

This brand of Nature/Sex dualism is a particular affliction of French mechanists and "scientific materialists," including the communists and—ultimately—the deconstructionists. Paglia's fondness for this position is bizarre. Since both Sade and Rousseau were extremely damaged personalities, trying to develop a theory of Western sexuality by reading them is like trying to understand human sexual behavior by studying sex criminals. She mistakes the quagmire of Sade's schizophrenic anti-Mother, anti-Catholic revenge fantasies for the Ur-Chthonian swamp.



MARRIAGE TO MOTHER NATURE: WORDSWORTH—THE DAEMON AS LESBIAN VAMPIRE: COLERIDGE

Read these two chapters together to follow Paglia's argument that the Romantic insistence on the innocence and purity of Nature and the Feminine, by repressing the dark side, makes inevitable the irruption of nightmarish Decadent images of the female. The lesbian vampire of Coleridge's Cristabel is the archetypal persona of feminine evil feeding off the Victorian ideal of female goodness. However, it seems strange that Paglia's sharp eye for the hidden subtext misses how much of Coleridge's imagery comes directly from his opium use.

CULTS OF SEX AND BEAUTY: BALZAC; GAUTIER, BAUDELAIRE AND HUYSMANS (2 CHAPTERS)

The too often slighted French Decadents here receive the detailed analysis they deserve. Paglia's sympathy with male sexual anxiety gives her insights a remarkable authenticity. As usual, her visual analysis is thrilling: Delacroix and Balzac, Baudelaire and Huysmans cross the page in splashes of scarlet and gold. Once again, she completely ignores the influence of hashish, laudanum and absinthe. Drugs are one aspect of the Shadow Paglia seems unwilling to illuminate.

ROMANTIC SHADOWS: EMILY BRONTË

If you care, this is the most coruscatingly insightful interpretation of Wuthering Heights ever written.

APOLLO DAEMONIZED: DECADENT ART

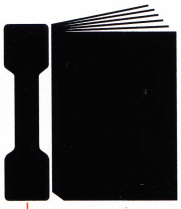
This is the best explication we have read of this artistic school—a personal favorite of Gracie's. There are also helpful illustrations of some of the paintings. Her sense of humor about these images is refreshing. Paglia understands the reaction to the Victorian idealization of woman much better than Bram Dijkstra, in his doctrinaire feminist *Idols of Perversity*.

THE BEAUTIFUL BOY AS DESTROYER: WILDE'S *THE PICTURE OF DORIAN GRAY* THE ENGLISH EPICENE: WILDE'S *THE IMPORTANCE OF BEING EARNEST*

For once, Paglia is crystal clear about the domain problem. Wilde's "publication of *Dorian Gray* produced Alfred, Lord Douglas, the beautiful boy…who brought Wilde down" while his last and best play (*Earnest*) was being performed. "The comedian, losing control of his genre, is devoured by the audience." We are also charmed by Paglia's tracing the descent of the epicene witticism from Jane Austen through Lewis Carroll to Wilde.

AMERICAN DECADENTS: POE, HAWTHORNE, MELVILLE

A fascinating analysis of the sex problem of Classic American literature: the "banishment of the maternal principle in Protestant cosmology." She sees in the American Decadents a struggle with the Shadow Goddess and the characteristically American attempt to create an exclusively male universe to shut Her out.



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She tries to convey the power of female sexuality, but loses it in hysterical imitation-male rants about blood and swamps

AMHERST'S MADAME DE SADE: EMILY DICKINSON

This is the best chapter in the book. Paglia really sinks her teeth into the "sentimental and sadistic personae" who alternate in Dickinson's "lurid and concrete" poetry. She is funny, trenchant and convincing, and even if you don't care about Emily Dickinson, the chapter is worth reading for the sheer brilliance of its critical thought.

ENVOI: FROM HOMO HIERARCHICUS TO HOMO TECHNOEROTICUS

We sometimes imagine ourselves to be extraterrestrial anthropologists examining the shards of Western Art. What to make of the recurring motif of sex and violence exfoliating through its artifacts?

Jung called it the Shadow—the repressed biological energy of sexual and aggressive drives. Read Nietzche. Read Reich. The Shadow looms over history, manifesting itself in war, political oppression, and sexual violence. But in the realm of the artist, the Shadow can defuse and amuse, enlighten and instruct.

For too long we have relied on the decaying remnants of crude tribal codes and outdated ideologies that have tried to control our biological urges by denying them. Any society that constantly forces large numbers of people to view themselves as deviant or criminal breeds widespread contempt for social responsibility. Social mores permit—even encourage—psychotic levels of pathology in the service of the tribe or state. The sexual hypocrisy on display in the U.S. Senate is a characteristic expression of traditional morality. A new ethic is needed, based on preventing *actual* harm to *real* individual human beings. This means distinguishing the domain of imagination from the domain of real behavior.

The Platonic and Christian refusal to distinguish between word and deed is at the root of much of our current confusion. There is an absolute difference between the writing of Brett Ellis and the behavior of Ted Bundy, even though they express the same kind of sexual disorder. Torturing someone to death is evil; writing about it is not—however upsetting or distasteful it may be to read (no one is forcing you to read it!). This domain error leads to the tragicomic irony of a Milwaukee cop blind to the imminent sex murder of an incapacitated naked boy, while the Sarasota sex police arrest a harmless entertainer for playing with himself in a sex movie house.

The challenge now for *Homo technoeroticus* is to free ourselves from the historical sex-and-violence undertow. There is a cornucopia of techniques that can lead to extraordinary levels of erotic intensity—without reliance on the fetishes and paraphilias used as crutches to support our damaged sexuality. Find and heal your sexual wounds. Release your armoring. Open up communication between the sexes to encourage genuine expressions of desire, and discourage harassment and fearful resentment. Techniques for such work are available in books such as *The Art of Sexual Ecstasy* (Margo Amand: Tarcher Books, 1990).

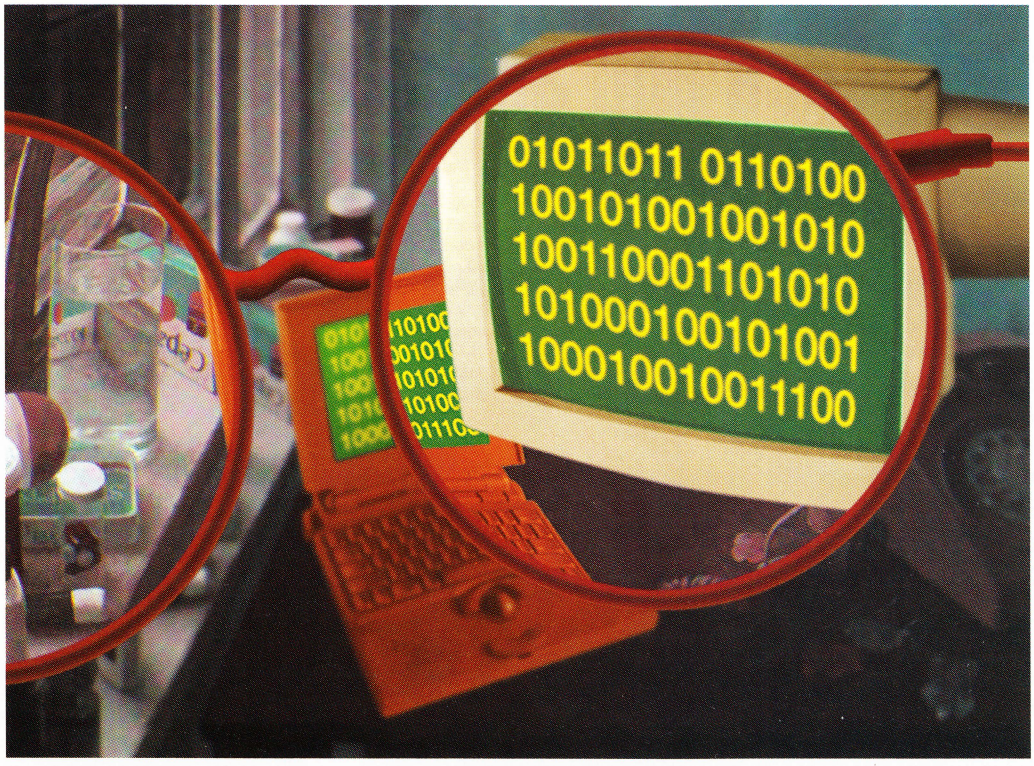
Flood the marketplace of ideas with satirical, playful, non-violent and non-pathological alternatives to the dualistic—"sex is sin, therefore, sin is sexy"—model. It's easy to write about whips, chains, cocaine and great Danes. It is much harder to describe the transcendent states of High Sex. All that S & M Christian-pervert stuff is clichéd fetishistic bullshit. Madonna, for example, is a genius at using the Catholic-bad-girl schtick to push everybody's buttons while satirizing antihumanistic forms of sexual expression.

Defend every human being's absolute freedom to create in Virtual Reality whatever our imaginations, however sick, dictate. Constraints should be on acting out only. The electronic cave wall permits us to project offensive, deviant, and violent images without causing real people real pain. Most people are far less kinky and dangerous in action than their taste in entertainment would suggest. Replace traditional values with a post-modern, scientific, high-tech ethic of individual responsibility—"no fraud, no coercion."

Here is a challenge for playful, honest, post-feminist technoerotic voluptuaries. Become guerrilla eroticists! Create and communicate examples of intense eroticism for others! Communicate in C—*and* in HDTV. (What was high definition made for anyway?) High technology enables us to explore sensuality far out on the New Edge. Get real interactive. Expand your orgasms and your wetware. Why settle for passé kinkiness when you can actualize techno-aphrodisia from the infosphere? What are you waiting for? M2



Hardware Review: PC Private Eye



Bart Nagel

Reflection Technology
Approximate retail price: $495.00

It's not a direct neural interface, but it *is* probably the best low-end VR you're going to get this year without controlled substances. Forget "new directions" in Virtual Reality research. Forget the last blot you downloaded from some dubious BB promising *Virtual Valerie Version 6.9* with virtual, ah, interaction—forget *all* that crap. Got an IBM compatible? Or better yet, a modified laptop? Got five hundred dollars? You can have this in your hot little hands *right now*. The *PC Private Eye* is a very small, headset-mounted virtual display providing a 720 x 280 pixel, high-contrast display...which appears to float a few feet in front of the user.

Chris Hudak

My God, I love this thing.

There's a cyberpunk axiom that says Information is Power. And so is negative Information, friends—i.e: Privacy. Ever had an idea or a project gun-jumped by a co-worker and discover his method was something as crude and preventable as a nosey look over your shoulder? Ever had your muse strafed by some social neutron star who just popped up like the Talking Moose: "Hi! Zappnin? Busy?"

Hell—ever been playing a *game* at work and had *Il Duce* walk up behind you?

With the *PC Private Eye*, you can forget all that. Keep your laptop closed if you want. *The only monitor is a hanging sheet of monochrome K-Mart cyberspace in front of your eye...* which only you can see. The small "screen" casing (a linear array of 280 LEDs, a magnifying lens, and a counterbalanced resonant vibrating scanning mirror, sweeping from one end of the virtual screen to the other and thus giving the user a "full" screen) attaches to a comfortable, if quite ugly, Mac-colored headband. It's adjustable for focus and field-of-view placement, so you can have your virtual display either slung low like a bifocal lens, or right there in your face, lovely in its sheer unavoidability.

I'm talking pure, I-want-it-all-and-I-want-it-now practicality. I could tell you about the implications for microtech work or surgery... but I won't. How about this—I'm one of those people who can't work unless I'm comfortable. I like to do my writing in some splined posture easiest achieved in high orbit, with my body laid out, my face pointed up away from my hands, which seem to be doing something fast and strange in my lap. I don't want to deal with targeting a monitor on the desktop, or even on the bed. I want it *in front of me, dammit*. With a normal monitor, your only shot at this kind of relaxation involves either solid TK or very reliable brackets on your ceiling. With the *PPE*, I can actually have my right-there display, and lie back, my eyes barely focused... and *oh*, it's wonderful. The virtual display never needs screen cleaner and nonabrasive cloth—if it's flecked and spotted, that's a *wetware* problem, chum. No glare. You can't suddenly sneeze a splatter shot onto it. And if—flouting all the laws of probability—you *break* it, it'll probably be on your *head* at the time, so no concern.

Getting used to the *PPE* takes a while, but getting used to Traci Lords would take a while too. And the display comes in just one color right now—*red*. Go figure. Reflection Technology assures me they're working on different colors: gray scale, high-res and eventually full color. For now, ya got red.

But enough of this channel noise. I haven't yet detailed the biggest, baddest feature of the *PC Private Eye*—the sheer *punk value* of the thing. It's hard to describe the effect it has on *others* to see you sitting there, slamming away on the keys (or better yet—hee hee—minutely drawing with a mouse), commenting and nodding to yourself as technogeeks often do—*while staring into open space* with this... *thing* clamped onto your head like something out of *Alien*. It's positively unwholesome.



Artificial Intelligence and Sincere Stupidity

(my cybertank's only as smart as its programmer)

Ogre
Origin Software
Suggested Retail: $29.95

This is Ogre (the legendary Steve Jackson game) the way it was *meant* to be played—against a merciless computer monster that doesn't scare and doesn't goof and doesn't give 3/16ths of a rat's ass if you'd like to take back that last move.

For the uninitiated, the year is 2085, and you're the commander of an armored division. You get to protect a command post from a fifty-meter-long cybernetic tank that could take twenty kilotons full in the face and laugh. Deal.

Chris Hudak

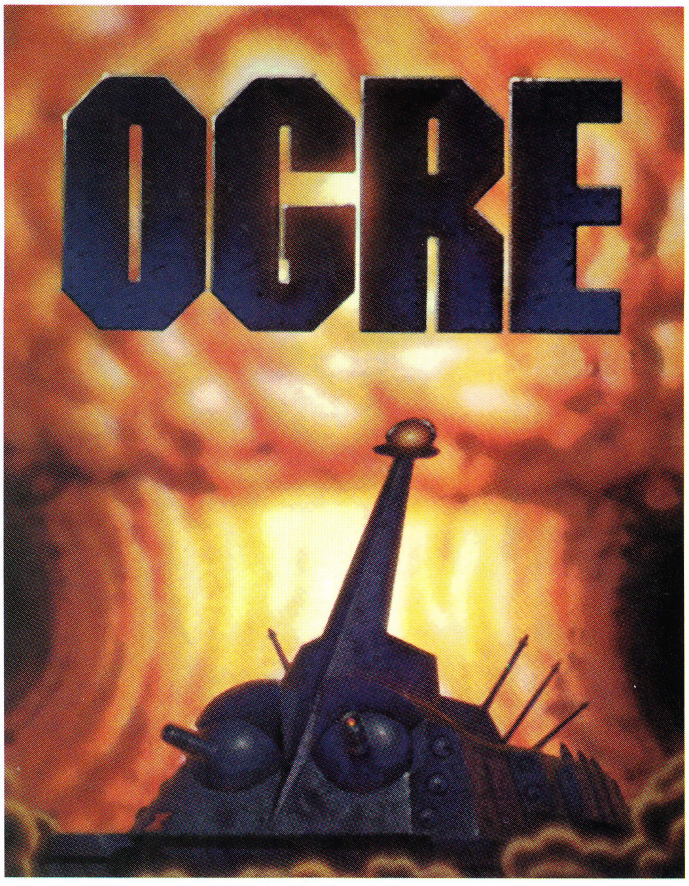
The Preferences option offers a choice: there's a two-player game with a human-controlled Ogre, or a solitaire, human vs. computer game. For the full experience, choose the latter. After setting the size and intelligence of the Ogre (I suggest starting off with a small, dumb one unless seeing carefully designed plans reduced to twisted, smoking, radioactive slag is your idea of Big Fun), it's time to loose the Ogre on your mixed defense force of armored infantry, tanks and hovercraft.

The Ogre, a single unit in tactical terms, is composed of a number of subsystems, each with its own offensive abilities, range and defense capability. The Ogre can torch an enemy armored unit from long range with a finite number of missiles, or attack with batteries of small and large guns. It bristles with short-range antipersonnel guns which can be used against your command post, assuming you let the cybertank get that close, assuming it gives you the choice—or it can simply overrun things, *crunch* and *sayonara*. Fifty-meter-long cybernetic killing machines are not known for their subtlety.

Ogre is like the proverbial duck, graceful and cool, paddling like hell below the surface. This is not *Bad Dudes* nor is it *Street Fighter II*, nor any other arcade reflex spasmodia; no cartoony animation—no *attempt* at animation. *Ogre* is for the laid-back armchair commander who presides over a battle map with a snifter of brandy, raking casualties off the map with a cue stick.

Ogre lends itself to layered defense tactics. Do you center on a sluggish defense built around a few long-range guns and heavy tanks, or rely on a sprightly hovercraft defense and hope to God your speed balances out your crappy firepower?

Once you've gotten to the point where you can whip an



Ogre at least half the time (don't hold your breath), you can amuse yourself with the field editor, altering the battleground terrain with mazes of craters and deadly bottlenecks. It's interesting to watch the Ogre deal with new terrain configurations, assessing its options. Of particular interest to those with a thang for AI is the Strategy Notes booklet's brief orientation on the decision-making directives of the Ogre. You may not understand exactly why you are losing, but it reassures you that there *is* some mathematically sound reason.

Ogre is ideal for those nights when you want to be challenged but not technically saturated. Plus every copy purchased is more money for Steve Jackson, who's a great game designer and currently hip-deep in legal excrement. Mutual benefit.



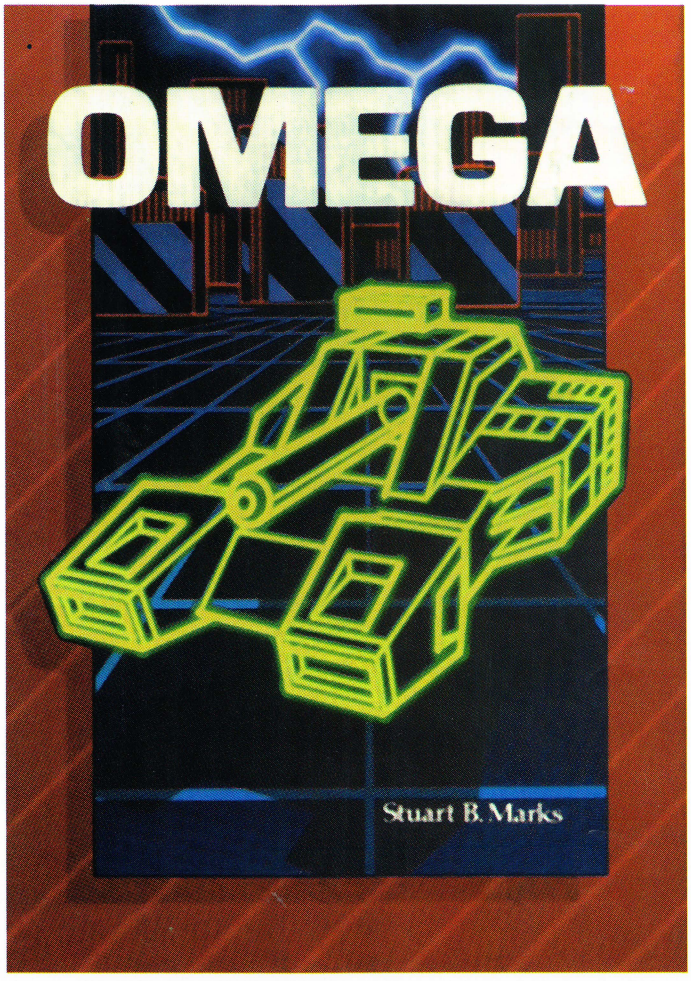
Omega
Origin Software
Suggested Retail: $39.95

If you're like me and hate cute games, Omega will have instant appeal. Made of the stuff which annihilates "cute" on contact, Omega takes itself very seriously and you had damn well better, too. Only the serious technopunk need even open the box.

The thick, deadpan *Cybertank Engineer's Handbook* inspires immediate respect, from its dense, eye-straining, no-frills tech manual format to its sheer *mass*. Your mission at the Organization of Strategic Intelligence is to design a cybertank from scratch. In true 'punk form, you test your creation by sending it into immediate combat against other preprogrammed tanks. If your design survives, you get authorized higher security clearances to build even nastier combatants.

If this sounds a lot like *Ogre* (another Origin Systems release), it's not.

Omega, less a game than a programming environment, is an ugly experience. It's a living monument to GI/GO, and in this case the Garbage In is *you*. The game uses a special Cybertank Command Language whose instructions read like either BASIC or fairly normal English:




```
CheckDist
Get distance to 11
If XYDist > 30 then MaybeGo
    or:
If Tank Treads Not Functional then FixTreads
Resume
```

For those who can't deal with the in-your-face challenge of a whole new language, special capsule routines can be strung together to implement your AI strategy. The routines EdgeSearch and BeeLineHunt provide different methods of locating targets. TrackEnemy tells a cybertank to keep tabs on a previously located target. And my personal favorite, BeserkAttack, assumes that brute force will compensate for any tactical oversights. With the capsule design system, new users can create broad battle schemes which can later be tweaked and refined to personal taste as you gain competence with the command structure. For some of us, it is a given that programming skill will increase, simply because it can't get any worse.

My first cybertank, aptly code-named "Snake-Eye," really crapped out. It spent its time looking for enemy units precisely where they weren't. That is, until an enemy tank sneaked up and pumped it full of artillery shells unopposed. Ah, yes—I'd forgotten to suggest that, fired upon, it might defend itself.

I realize fully that what we have here is a user problem.

As my creation busily died, I switched to an orbital view of the battlefield and watched with a good simulation of horror as three other blips—enemy tanks—closed in from different parts of the map.

I didn't receive my clearance.

While including options for manual cybertank control, *Omega* is not a "game" in the usual sense. It's a simulator, and an excellent introductory programming environment. Watching your creation cope with terrain and enemy tactics and work on its own can be a little like watching your firstborn take those first tottering steps around the living room. But *this* baby can take out the living room wall.

Take a hack at *Omega*. Have some dark, technophiliac fun. And remember—GI/GO—it's not just a cute saying. *It's the law.* M2



Exploring the Gnarl:
Chaos: The Software

James Gleick's
Chaos: The Software
for DOS systems
$60.00 from Autodesk,
2320 Marinship Way,
Sausalito, CA 94965



Erin Riordin

Mark Frauenfelder

When Johnny Rotten sang "No Fun" at the Sex Pistols' final show in San Francisco, he could have been talking about the novelty Sea Monkeys, Magic Rocks and Lava-Lamps out of everyone's childhood. What a preparation for life!

The ad for the Sea Monkeys showed smiling pink primates standing in front of their underwater palace. They turned out to be brine shrimp—horrible little 1/16th-inch wrigglers that looked like disease germs. The Magic Rocks did have their evanescent beauty—but they too dried up on the shelf. Lava-Lamps are interesting, in a primordial way. But wouldn't it be great if the lamp had control knobs on it?

Now thanks to *Chaos*: The Software, it does. And *Chaos*: The Software also brings you the Sea Monkeys and Magic Rocks of your dreams.

Rudy Rucker, Mathenaut in the Advanced Technology department of Autodesk, dubbed his earlier commercial chaos program *Freestyle CA*. It had several character-graphic cellular automata that made computer screens bubble like high speed lava-lamps. *Chaos*: The Software is based on James Gleick's book and represents a further refinement of the original. And it's got your digital Sea Monkeys in the form of pixel-graphic cellular automata—and your fractal Magic Rocks. And much more.

Chaos science explores the twisted strip of activity boiling between the homogenizing grinder of disorder and the dead scaffolding of order. Rucker's advice to *Chaos* explorers is "Seek ye the gnarl!" *Chaos*: The Software is an entry ticket and guidebook to the gnarl.

Chaos has six sections: "Mandelbrot Sets," "Magnets and Pendulum," "Strange Attractors," "The Chaos Game," "Fractal Forgeries" and "Toy Universes." The sections are controlled with pushbuttons. A Tweak button sets chaoticity parameters. Coloring, sound effects, etc. are controlled with the Options button. The File button stores images to GIF files and saves set-up parameters. The context-sensitive, on-line help is excellent. Gleick's engaging introductions and Rucker's explanations of the math behind the programs make the 240-page manual useful and fun to read. *Chaos* is best run with a mouse.

The Mandelbrot Set

Almost everyone has seen a photograph of the Mandelbrot set—it looks like a needle-nosed flea with a fat butt. Infinitely complex and crammed to the gills with haunting beauty, it can be fully described in a 10-line algorithm. The Mandelbrot program in *Chaos* is like a microscope with various filters and kaleidescopic attachments for zooming, color bandwidth tweaking, and sound generating, all for examining the strange fleas on the back of this strange flea.

Magnets and Pendulum

This section simulates a set of disk-shaped magnets on a tabletop and a pendulum with an iron bob swinging from above. The number of magnets—their charge and location—are user-specified. The "basins of attraction" function maps a fractal-like color map of the start-point/end-point relationships for the bob. The chaotically moving bob reminds me of myself as I walk around the building where I work. The coffee urn and computers are positively charged magnets, and I orbit them often. Obnoxious pests have negative charges, and I fly right by them. If they start moving towards me, I run away.

Strange Attractors

A point moving in a chaotic system never returns to a previously occupied location. This kind of dynamical system is called a strange attractor. Strange attractors are the reason we can't make long-term predictions about the weather, no matter how accurate our measuring equipment is. *Chaos* has controls to view and tweak several famous strange attractors. You can also play with logistic maps, pulses and humps, produce weird music with the sound option, and save interesting parameter sets to disk.

The Chaos Game

Oxford mathematician Michael Barnsley invented a way to produce organic-looking images by randomly applying basic rules repeatedly. With *Chaos*, you can play Barnsley's Chaos Game to develop nautilus shells, ferns, clouds, mud blobs, and countless other shapes.

Fractal Forgeries

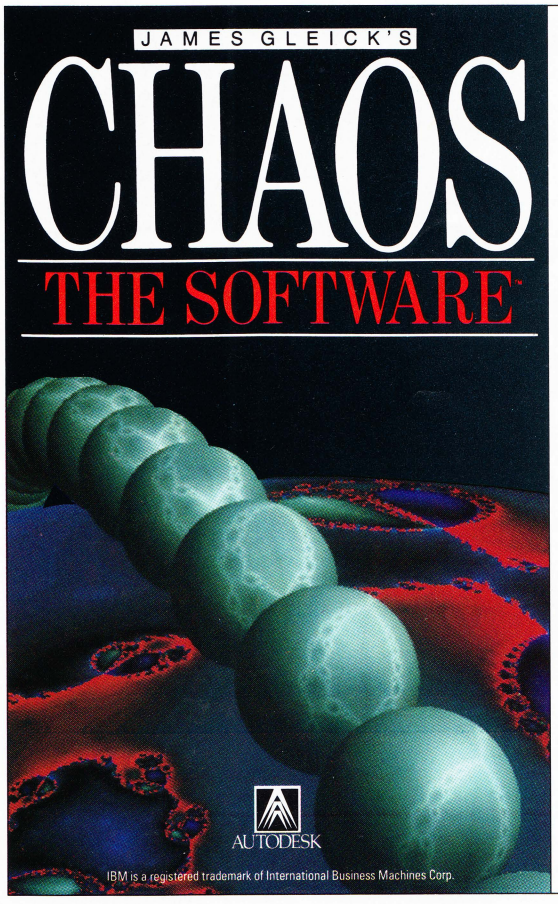
Chaos scientists like to classify natural objects by their fractional dimensions. Coasts, being more than lines, yet less than planes, are assigned fractional dimensions between 1 and 2, depending on their level of chaoticity. Clouds and mountains are between 2 and 3. With Fractal Forgeries, you specify a fractional dimension to generate clouds, mountains and planets. You can even specify a range of values and render a short animated cartoon to illustrate the changing parameters. Instant Magic Rocks!

Toy Universes

Cellular automata are similar to petri dishes of bacteria. By using a rule table specifying the behavior of a cell based on its current state and the state of its neighbors, the Toy Universes program will produce fantastic patterned images depicting the development of colonies of artificial lifers.

Finally, a Warning:

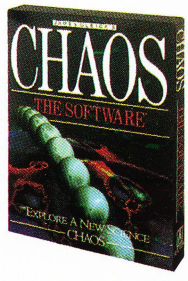
This software will change you. Your freshly-mutated brain will put a chaos-spin on everything it encounters. Clouds and groups of playing schoolchildren become cellular automata. Snowflakes and galaxies become Julia sets. Eventually, the theory will invade your dreams, and you'll experience yourself as the ultimate chaotic system. M2



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Pirate Utopias

and the Temporary Autonomous Zone

by Hakim Bey

The medieval Assassins founded a "State" which consisted of a network of remote mountain valleys and castles, separated by thousands of miles, strategically invulnerable to invasion, connected by the information flow of secret agents, at war with all governments, and devoted only to knowledge. Modern technology, culminating in the spy satellite, makes this kind of autonomy a romantic dream. No more mountain fortresses! No more pirate islands! In the future the same technology—freed from all political control—could make possible an entire world of autonomous zones. But for now the concept remains precisely science fiction—pure speculation.

Bruce Sterling, cyberpunk laureate, published a near-future romance about political systems in decay. This decay led to a decentralized proliferation of experiments in living: giant worker-owned corporations, independent enclaves devoted to "data piracy," Green-Social-Democrat enclaves, Zerowork enclaves, anarchist liberated zones, etc. The information economy which supports this diversity is called "the Net;" the enclaves (and the book's title) are *Islands in the Net*.

The Net must expand. At present it reflects more abstraction than actuality. Zines and BBSs exchange information, which is part of the necessary groundwork of the TAZ, but very little of this information relates to concrete goods and services necessary for the autonomous life. (We do not live in CyberSpace; to dream that we do is to fall into CyberGnosis, the false transcendence of the body!)

A certain kind of "free enclave" has not only existed in the past—we can use it to model future autonomous zones. These autonomous zones involve a return to ferality, a growth from tameness to wild(er)ness. A yoga of chaos, of complex dynamism, of "surfing the wave-front." The TAZ as an art of living—as a seducer not a rapist, a smuggler not a bloody pirate, a dancer not an eschatologist. Preëminently, we find this modeled in the "pirate utopias" of the 18th century.

The sea rovers and corsairs of that time created an "information network" that spanned the globe; primitive and devoted primarily to grim business, the net nevertheless functioned admirably.

Imagine a Nietzsche with good digestion

Scattered throughout the net were islands—remote hideouts where ships could be watered and provisioned, booty traded for luxuries and necessities. Some of these islands supported "intentional communities," whole mini-societies living consciously and determinedly outside the law if only for a short and merry while.

The whole notion of pirate utopias intrigued me. Some years ago I looked through a lot of secondary literature hoping to find a study of these enclaves—but it appeared that no historian had found them worthy of probing. William Burroughs mentioned the subject, as did the late British Larry Law, but there seems to have been no systematic research. I was forced to retreat to primary sources. This study opened up fantastical mindscapes of what it meant to be feral and free.

The TAZ must be the scene of our present autonomy. It can only exist on the condition that we already know ourselves as free beings. With all due disclaimers then, here is a scattershot view of this fascinating complex—a mosaic of glimpses, beginning quite arbitrarily with the 16th-17th centuries and the settlement of the New World.

The opening of the New World was conceived from the start as an occultist operation. The magus John Dee, spiritual advisor to Elizabeth I, seems to have invented the concept of "magical imperialism" and infected an entire generation with it. Hakluyt and Raleigh fell under his spell, and Raleigh used his connections with the "School of Night"—a cabal of advanced thinkers, aristocrats, and adepts—to further the causes of

exploration, colonization and mapmaking. *The Tempest* was a propaganda-piece for the new ideology, and the Roanoke Colony was its first showcase experiment.

The alchemical view of the New World associated it with materia prima or hyle, the "state of Nature," innocence and all-possibility ("Virgin-ia"), a state of chaos or inchoateness which the adept would transmute into "gold," that is, into spiritual perfection as well as material abundance.

But this alchemical vision is also informed in part by an actual fascination with the inchoate, a sneaking sympathy for it, a feeling of yearning for its formless form which took the symbol of the "Indian" for its focus: "Man" in the state of nature, uncorrupted by "government." Caliban, the Wild Man, is lodged like a virus in the very machine of Occult Imperialism. The forest/animal/humans are invested from the very start with the magic power of the marginal, despised and outcast. On the one hand Caliban is ugly, and Nature a "howling wilderness"—on the other, Caliban is noble and unchained, and Nature an Eden. This split in European consciousness predates the Romantic/Classical dichotomy; it's rooted in Renaissance High Magic. The discovery of America (El Dorado, the Fountain of Youth) crystallized it; and it precipitated in actual schemes for colonization.

The pirates were inordinately fond of music and used to hire on bands for entire cruises

We were taught in elementary school that the first settlements in Roanoke failed; the colonists disappeared, leaving behind them only the cryptic message "Gone to Croatan." What happened, the textbook implied, was that the Indians massacred the defenseless settlers. Later reports of "grey-eyed Indians" were dismissed as legend. However, "Croatan" was not some El Dorado; it was the name of a neighboring tribe of friendly Indians. Clearly what really happened was the settlement simply moved back from the Coast into the Great Dismal Swamp and was absorbed into the tribe. And the grey-eyed Indians were real—and they're still there, and they still call themselves Croatans.

So—the very first colony in the New World went native. They chose to renounce their contract with Prospero (Dee/Raleigh/Empire) and go over to the Wild Men with Caliban. They dropped out. They became "Indians," opting for chaos over the appalling miseries of serfing for the plutocrats and intellectuals of London.

As America came into being where once there had been "Turtle Island," Croatan remained embedded in its collective psyche. Out beyond the frontier, the state of Nature—i.e. no State—still prevailed. The option of wildness always lurked, the temptation to give up on Church, farmwork, literacy, taxes—all the burdens of civilization—and "go to Croatan" in some way or another. Moreover, as the Revolution in England was betrayed, first by Cromwell and then by Restoration, waves of Protestant radicals fled or were transported to the New World (which had now become a place of exile). Antinomians, Familists, rogue Quakers, Levellers, Diggers, and Ranters were now introduced to the occult shadow of wildness, and rushed to embrace it.

There were radical factions of the Antinomian movement The incidents Hawthorne relates in "The Maypole of Merry Mount" are thoroughly historical; apparently the extremists had decided to renounce Christianity altogether and revert to paganism. If they had succeeded in uniting with their Indian allies the result might have been an Antinomian/Celtic/Algonquin syncretic religion—a sort of 17th century North American Santeria!

Sectarians were able to thrive better under the looser and more corrupt administrations in the Caribbean, where rival European interests had left many islands deserted or even unclaimed. Barbados and Jamaica in particular must have been settled by many extremists, and I believe that Levellerish and Ranterish influences contributed to the Buccaneer "utopia" on Tortuga. Here for the first time, thanks to Esquemelin, we can study a successful New World proto-TAZ in some depth. Fleeing from hideous "benefits" of Imperialism such as slavery, serfdom, racism and intolerance, from the tortures of impressment and the living death of the plantations, the Buccaneers adopted Indian ways, intermarried with Caribs, accepted blacks and Spaniards as equals, rejected all nationality, elected their captains democratically, and reverted to the "state of Nature." Having declared themselves "at war with the world," they sailed forth to plunder under mutual contracts called "Articles" which were so egalitarian that every member received a full share and the Captain usually only one and a quarter or one and a half shares. Flogging and punishments were forbidden—quarrels were settled by vote or by the code duello.

It is simply wrong to brand the pirates as mere sea-going highwaymen or even proto-capitalists, as some historians have done. In a sense they were "social bandits" although their base communities were not traditional peasant societies but "utopias," created out of nothing: enclaves of total liberty occupying empty spaces on the map. After the fall of Tortuga, the Buccaneer ideal remained alive all through

the Golden Age of Piracy (ca. 1660-1720), and resulted in land-settlements in Belize, for example, which was founded by Buccaneers. Then, as the scene shifted to Madagascar—an island still unclaimed by any imperial power and ruled only by a patchwork of native chiefs eager for pirate allies—the pirate utopia reached its highest form.

Defoe's account of Captain Mission and the founding of Libertatia may be, as some historians claim, a literary hoax meant to propagandize for radical Whig theory—but it was embedded in *The General History of the Pyrates* (1724-28), most of which is still accepted as true and accurate. Moreover the story was not criticized when the book appeared and many old Madagascar hands still survived. They seem to have believed it, no doubt because they experienced pirate enclaves very much like Libertatia. Once again, rescued slaves, natives, and even traditional enemies such as the Portuguese were all invited to join as equals. (Liberating slave ships was a major preoccupation.) Land was held in common, representatives elected for short terms, booty shared; doctrines of liberty were preached far more radical than even those of Common Sense.

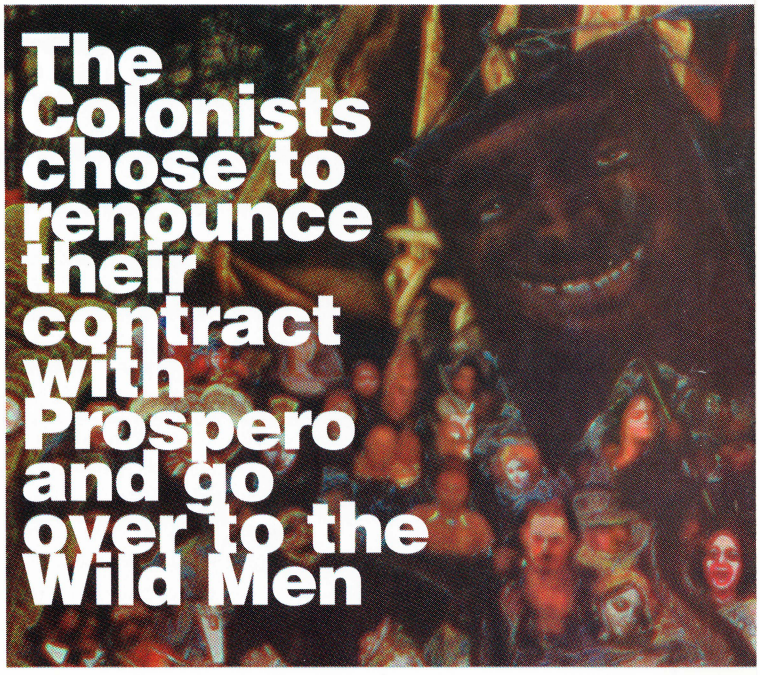
Libertatia hoped to endure, and Captain Mission died in its defense. But most of the pirate utopias were meant to be temporary. In fact, the corsairs' true republics were their ships, which sailed under "Articles." The shore enclaves usually had no law at all. The last classic example was Nassau in the Bahamas, a beachfront resort of shacks and tents devoted to wine, women, and song (and undoubtedly boys too, to judge by Birge's *Sodomy and Piracy*). The pirates were inordinately fond of music and used to hire on bands for entire cruises.

Yet Nassau, which exemplified "wretched excess," vanished overnight when the British fleet appeared in the Bay. Blackbeard and "Calico Jack" Rackham and his crew of pirate women moved on to wilder shores and nastier fates, while others meekly accepted the Pardon and reformed. But the Buccaneer tradition lasted, both in Madagascar where the mixed-blood children of the pirates began to carve out kingdoms of their own, and in the Caribbean, where escaped slaves as well as mixed black/white/red groups were able to thrive in the mountains and backlands as "Maroons." The Maroon community in Jamaica still retained a degree of autonomy and many of the old folkways when Zora Neale Hurston visited there in the 1920's (see *Tell My Horse*). The Maroons of Surinam still practiced African "paganism."

Throughout the 18th century, North America also produced a number of drop-out "tri-racial isolate communities." (This clinical-sounding term was invented by the Eugenics Movement, which produced the first scientific studies of these communities. Unfortunately the "science" merely served as an excuse for hatred of racial "mongrels" and the poor, and the "solution to the problem" was forced sterilization.) The nuclei invariably consisted of runaway slaves and serfs, "criminals" (i.e. the very poor), "prostitutes" (i.e. white women who married non-whites), and members of various native tribes. In some cases, such as the Seminole and Cherokee, the traditional tribal structure absorbed the newcomers; in other cases, new tribes were formed. Thus we have the Maroons of the Great Dismal Swamp, who persisted through the 18th and 19th centuries, adopting runaway slaves, functioning as a way station on the Underground Railway, and serving as a religious and ideological center for slave rebellions. The religion was HooDoo, a mixture of African, native, and Christian elements, and according to the historian H. Leaming-Bey, the elders of the faith and the leaders of the Great Dismal Maroons were known as "the Seven Finger High Glister." (read clyster!—doubtless a reference to initiatory hazing.)

The Ramapaughs of northern New Jersey (incorrectly known as the "Jackson Whites") present another romantic and archetypal genealogy: freed slaves of the Dutch poltroons, various Delaware and Algonquin clans, the usual "prostitutes," the "Hessians" (a catch-phrase for lost British mercenaries, drop-out Loyalists, etc.), and local bands of social bandits such as Claudius Smith's.

An African-Islamic origin is claimed by some of the groups, such as the Moors of Delaware and the Ben Ishmaels, who migrated from Kentucky to Ohio in the mid-18th century. The Ishmaels practiced polygamy, never drank alcohol, made their living as minstrels, intermarried with Indians and adopted their customs, and were so devoted to nomadism that they built their houses on wheels. Their annual migration triangulated on frontier towns with names like Mecca and Medina. In the 19th century some of them espoused anarchist ideals, and they were targeted by the Eugenicists for a particularly vicious pogrom of salvation-by-extermination. Some of the earliest Eugenics laws were passed in their honor. As a tribe they "disappeared" in the 1920's, but probably swelled the ranks of early



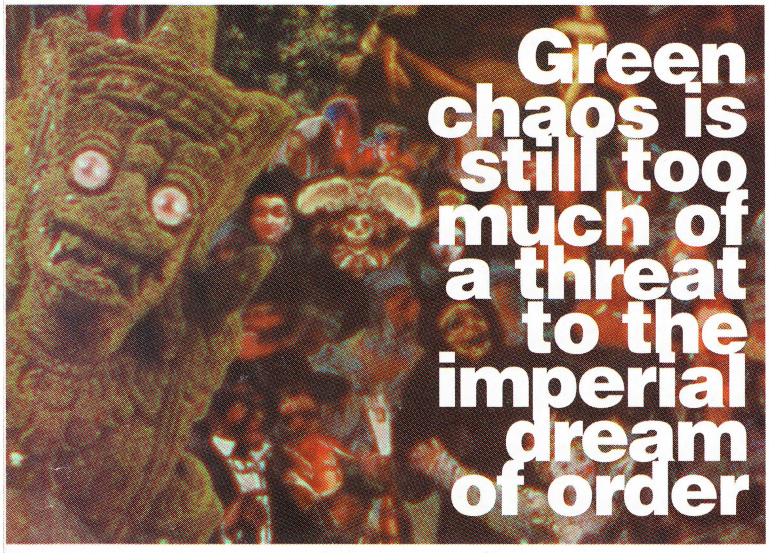
"Black Islamic" sects such as the Moorish Science Temple.

I myself grew up on legends of the "Kallikaks" of the nearby New Jersey Pine Barrens (and of course on Lovecraft, a rabid fascist who was fascinated by the isolate communities). The legends turned out to be folk-memories of the slanders of the Eugenicists, whose U.S. headquarters were in Vineland, NJ, and who undertook the usual "reforms" against "miscegenation" and "feeblemindedness" in the Barrens (including the publication of photographs of the Kallikaks, crudely and obviously retouched to make them look like monsters of misbreeding).

The "isolate communities"—at least, those which have retained their identity into the 20th century—consistently refuse to be absorbed into mainstream culture or the black "subculture" into which modern sociologists prefer to categorize them. In the 1970's, inspired by the Native American renaissance, a number of groups—including the

Moors and the Ramapaughs—applied to the Bureau of Indian Affairs for recognition as Indian tribes. They received support from native activists but were refused official status. If they'd won, after all, it might have set a dangerous precedent for drop-outs of all sorts, from "white Peyotists" and hippies to black nationalists, aryans, anarchists and libertarians—a "reservation" for anyone and everyone! The "European Project" cannot recognize the existence of the Wild Man—green chaos is still too much of a threat to the imperial dream of order.

Essentially the Moors and Ramapaughs rejected the "diachronic" or historical explanation of their origins on favor of a "synchronic" self-identity based on a "myth" of Indian adoption. Or to put it another way, they named themselves "Indians." If everyone who wished "to be an Indian" could accomplish this by an act of self-naming, imagine what a mass exodus there would be! That odd occult shadow still haunts the remnants of our forests (which, by the way, have greatly increased in the Northeast since the 18-19th century as vast tracts of



farmland return to scrub. Thoreau on his deathbed dreamed of the return of "...Indians ...forests...": the return of the repressed).

The Moors and Ramapaughs of course have good materialist reasons to think of themselves as Indians—after all, they have Indian ancestors—but if we view their self-naming in "mythic" as well as historical terms, we'll learn more of their relevance to our quest for the TAZ. Within tribal societies there exist what anthropologists call mannenbunden totemic societies devoted to an identity with "Nature" in the act of shapeshifting, of becoming the totem-animal (werewolves, jaguar shamans, leopard men, cat-witches, etc.). In the context of an entire colonial society (as Taussig points out in *Shamanism, Colonialism and the Wild Man*), the shapeshifting power is seen as inhering in the native culture as a whole. Thus the most repressed sector of the society acquires a paradoxical power through the myth of its occult knowledge. Even as they are marginalized, the Margin takes on an aura of magic. Before the whiteman, they were simply tribes of people—now, they are "guardians of Nature," inhabitants of the "state of Nature." Finally the colonist himself is seduced by this "myth." Whenever an American wants to drop out or back into Nature, invariably he "becomes an Indian." The Massachusetts radical democrats (spiritual descendants of the radical Protestants) who organized the Boston Tea Party literally believed that governments could be abolished. They disguised themselves as "Mohawks" and the whole Berkshire region declared itself in a "state of Nature!" Thus the colonialists, who suddenly saw themselves marginalized vis-à-vis the motherland, adopted the role of marginalized natives, thereby partaking in their occult power and mythic radiance. From the Mountain Men to the Boy Scouts, the dream of "becoming an Indian" flows beneath myriad strands of American history, culture and consciousness.

The sexual imagery connected to "tri-racial" groups also bears out this hypothesis. "Natives" of course are always immoral, but racial renegades and drop-outs must be downright polymorphous-perverse. The Buccaneers were buggers, the Maroons and Mountain Men were miscegenists, the "Jukes and Kallikaks" indulged in fornication and incest (leading to mutations such as polydactyly), the children ran around naked and masturbated openly, etc., etc. Reverting to a "state of Nature" paradoxically seems to allow for the practice of every "unnatural" act—or so it would appear if we believe the Puritans and Eugenicists. And since many people in repressed moralistic societies secretly desire exactly these licentious acts, they project them outwards onto the marginalized. Becoming "wild" is always an erotic act, an act of nakedness.

Mixed cultures remain submerged; hypocritical cant we have always with us. The autonomous zones of the Buccaneers and Maroons, Ishmaels and Moors, Ramapaughs and "Kallikaks" remain, or their stories remain, as indications of what Nietzsche might have called "the Will to Power as Disappearance." The TAZ is like a nomad camp, an uprising which does not engage directly with the State. A guerilla operation which liberates an area—of land, of time, of imagination—and then dissolves itself to re-form elsewhere/elsewhen, before the State can crush it. Because the State is concerned primarily with Simulation rather than substance, the TAZ can "occupy" these areas clandestinely and carry on its festal purposes for quite a while in relative peace.

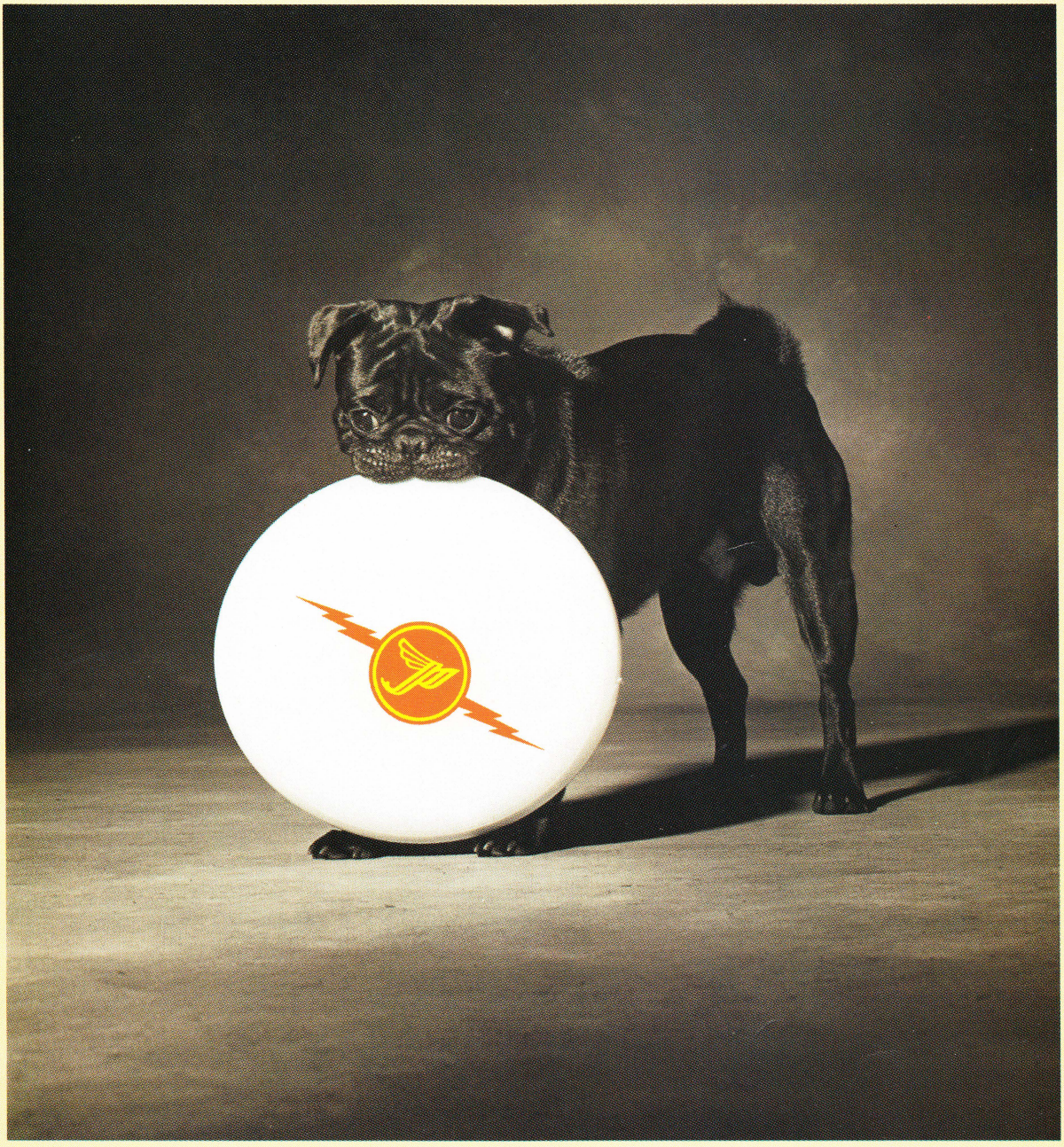
This brings us to the subject of "Applied Hedonics." Let us admit that we have attended parties where for one brief night a republic of gratified desires was attained. Shall we not confess that the politics of that night have more reality and force for us than those of, say, the entire U.S. Government? Some of the "parties" we've mentioned lasted for two or three years. Is this something worth imagining, worth fighting for? Let us study invisibility, webworking, psychic nomadism—and who knows what we might attain?

In the face of contemporary pecksniffian anaesthesia we'll erect a whole gallery of forebears—heroes who carried on the struggle against bad consciousness but still knew how to party. A genial gene pool, a rare and difficult category to define, great minds not just for the Truth but for the truth of pleasure. Serious but not sober, their sunny dispositions make them not sluggish but sharp; brilliant, not tormented. Imagine a Nietzsche with good digestion. Not the tepid Epicureans nor the bloated Sybarites. Sort of a spiritual hedonism, an actual Path of Pleasure, vision of a good life which is both noble and possible, rooted in a sense of the magnificent over-abundance of reality. Is this not vouchsafed us in our very Constitution?!?

If He had wanted us to work, after all,
He would have not created this wine

With a skinful of this, Sir,
Would you rush out to commit economics?

—Rumi



she was looking like an erotic vulture

Pixies

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Elektra 4AD

We apologize.

What we really meant was:
QEMM-386 makes the most of every last 'K'—automatically. It finds more RAM between 640K and 1 megabyte than DOS 5 or any other memory manager. Lots more.

We under-sold Optimize.
Optimize does everything we said it does, but it manages your memory much more smoothly and quickly than you'd guess from this ad. It checks out virtually every possible combination of memory mapping—automatically.

We under-stated high memory gain.
QEMM-386 finds even more memory than we said—211K additional high memory in most cases. (We wanted to be conservative, but on most PCs, we got over 200K more room for TSRs and drivers between 640K and one megabyte.)

Oops!
When we said that all other memory managers require you to manually re-allocate memory between expanded and extended types, we should have said most memory managers require manual re-allocation, and none find more useable high memory.



We left out Squeeze.
Some TSRs require a lot more memory to start than they do to run. Squeeze increases available memory to accommodate their memory demand, then cuts it back to just what's necessary. The result? You can get more TSRs and utilities out of the way, and eliminate wasted memory.

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Award-winning Quarterdeck Manifest is included with both QEMM-386 and QEMM 50/60. It's a $60 value that provides information you simply can't get any other way. And it makes memory simple to understand.

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Not only does it typically find a lot more memory than we claimed, it also does its memory management job more quickly, smoothly and unobtrusively than we lead you to believe.

Results of running QEMM-386 v.6 with Stealth*

	DOS 3.3		DOS 4.0		DOS 5.0	
Model	DOS Program Size	Avail High Mem	DOS Program Size	Avail High Mem	DOS Program Size	Avail High Mem
IBM PS/2 80	581K	211K	572K	211K	620K	211K
Compaq 20e	581K	211K	572K	211K	620K	211K
ALR VEISA	582K	211K	573K	211K	620K	211K

This chart shows how big a DOS program can be and how much high memory is made available when you use our new QEMM-386. Sorry it isn't more colorful.

#1
QEMM is the #1 selling utility according to PC Magazine.

Stealth, our new RAM-gain feature, 'maps' ROM into other areas of memory—to provide you with the maximum available RAM between 640K and 1 megabyte. That's space QEMM then uses to load memory-hogging TSRs and drivers (like network software) out of the memory areas your big programs need.

How it works is not as important as the end result—more useable high memory—as much as 211K!

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* Here we are, being cautious again: Because Stealth alters the memory mapping of your PC, how much high memory you'll gain depends on the 'BIOS' in your computer. We've tested Stealth on a wide range of PCs, from Compaqs to PS/2s; ALRs, Toshibas and many others. Typically, an additional 211K becomes available between 640K and 1 megabyte. Depending on your PC, your memory gain may vary.